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14. ABSTRACT: (U) The National Defense Authorization Act for Fiscal Year 1999 (FY 99) directed a 5-year pilot program to treat graduates of home schools and graduates of the National Guard Youth ChalleNGe Program holding General Education Development (GED) diplomas as Tier 1 for enlistment eligibility purposes. The Department of Defense (DOD) classifies enlisted accessions into three tiers based on education credentials. Tier 1 recruits are primarily high school diploma graduates (HSDGs), Tier 2 recruits are primarily GEDs, and Tier 3 recruits are high school dropouts. Enlistment tiers are intended to reflect attrition patterns—Tier 1 having the lowest attrition. DOD standards require that at least 90 percent of accessions be Tier 1. Recruits in Tiers 2 and 3 must score at or above the 50th percentile on the Armed Forces Qualification Test (AFQT). This study seeks to satisfy a congressional requirement for DOD to evaluate the performance of home school graduates with GEDs and recommend their permanent tier status. The Directorate for Accession Policy, Office of the Assistant Secretary of Defense (Force Management Policy) asked CNA to assess the early separation rates and interest in military service of these two groups of recruits and to identify effective ways to reach out to them.

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Evaluation of the Pilot Program for Home School and ChalleNGe Program Recruits

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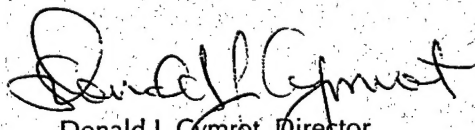
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This document represents the best opinion of CNA at the time of issue.
It does not necessarily represent the opinion of the Department of the Navy.

Contents

Summary

Background

The National Defense Authorization Act for Fiscal Year 1999 directed a 5-year pilot program to treat graduates of home schools and graduates of the National Guard Youth ChalleNGe Program holding General Education Development (GED) diplomas as Tier 1 for enlistment eligibility purposes. The Department of Defense (DOD) classifies enlisted accessions into three tiers based on education credentials. Tier 1 recruits are primarily high school diploma graduates (HSDGs), Tier 2 recruits are primarily GEDs, and Tier 3 recruits are high school dropouts.

Enlistment tiers are intended to reflect attrition patterns—Tier 1 having the lowest attrition. DOD standards require that at least 90 percent of accessions be Tier 1. Recruits in Tiers 2 and 3 must score at or above the 50th percentile on the Armed Forces Qualifications Test (AFQT).

This study seeks to satisfy a congressional requirement for DOD to evaluate the performance of home school graduates and ChalleNGe graduates with GEDs and recommend their permanent tier status. The Directorate for Accession Policy, Office of the Assistant Secretary of Defense (Force Management Policy) asked CNA to assess the early separation rates and interest in military service of these two groups of recruits and to identify effective ways to reach out to them.

The size of the home school student population in the United States was approximately 800,000 during the 1999-2000 school year (about 2 percent of the K–12 population). In recent years, the number of home schoolers has grown by at least 7 percent per year. Common reasons for home schooling are dissatisfaction with the local schools and promotion of religious values. Home schoolers have strong academic achievement.

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The ChalleNGe Program targets 16- to 18-year-old high school drop-outs and expellees. Its primary goals are to improve participants' employment potential and life skills and provide them with GED instruction. Authorized by Congress in 1993, it consists of a 22-week residential program conducted in a quasi-military environment. In the year 2000, 26 states and territories participated in the ChalleNGe Program with a total of 4,500 graduates; the cumulative number of graduates exceeds 25,000.

To obtain information about home schoolers and ChalleNGe Program participants, we conducted three surveys. First, we administered the Survey of Recruits' Education and Background to more than 67,000 recruits. We matched the recruit survey data to personnel files maintained by the Defense Manpower Data Center (DMDC). Second, we administered a special collection of the Youth Attitude Tracking Study (YATS) to about 400 home schoolers and 350 ChalleNGe Program participants. Finally, we used the responses to our Survey of Home School Associations to develop a meticulous data algorithm to identify home school graduates.

The number of home school and ChalleNGe recruits was below the 5,000 annual goal for a combination of these recruits set forth by the pilot program. There were about 1,500 home school recruits (0.8 percent of the total) and 750 ChalleNGe graduates with GEDs (0.4 percent of the total) in the four Services combined during the year ending in February 2000.

Findings

Overclassification of recruits

According to our recruit survey, the number of recruits in Tiers 2 and 3 in each Service is significantly greater than that captured in the DMDC files. From the match of the recruit survey to the DMDC files, we found that the DMDC files overclassify 8 percent of recruits for the four Services combined. An example of overclassification is a recruit who appears as an HSDG in the DMDC files but reports to us on the survey having a GED only or no credential at all.

Supporting our finding of overclassification, recruits who appear in the DMDC files as Tier 1 but report to us that they have a GED or no credential behave like Tier 2–3 recruits in each Service. These recruits have an average 12-month attrition rate of 17 percent, compared to only 10 percent for recruits classified as Tier 1 in both the survey and the DMDC files.

Furthermore, overclassified recruits have a significantly lower average AFQT score than Tier 1 recruits. One-half of recruits overclassified to Tier 1 have AFQT scores of less than 50. A conservative estimate of the annual cost of the overclassification for recruiting and training replacements is $16 million.

We believe the credentials we identify in the recruit survey are more accurate than those in the DMDC files because recruits completed our survey soon after the "moment of truth"—when drill instructors press recruits to correct erroneous entries on their records, including their education records. We collected the survey by the second day of boot camp; the DMDC data are often captured months before.

The Navy and the Army were not complying with the DOD standard of 10 percent for accessions in Tiers 2 and 3. After reclassifying recruits according to credentials reported on the survey, we found that during the year, recruits in Tiers 2 and 3 made up 19 percent of accessions in the Navy and 18 percent in the Army.

Attrition of home school and ChalleNGe recruits

We based our analysis on the recruit survey to avoid the credential misclassification in the DMDC files. We validated our attrition findings with regression analysis.

Home school graduates with AFQT scores of 50 and above have attrition levels comparable to HSDGs. At 12 percent, their average attrition rate is lower than that of private school graduates, only slightly higher than that of public school graduates, and more than 8 percentage points lower than that of GEDs. Home school graduates with high AFQT scores are slightly less likely than HSDGs to leave early for misconduct and failure to adapt. Sixty-four percent of home school

recruits have an AFQT score of 50 or higher. Home school graduates with low AFQT scores, however, have relatively high attrition levels.

ChalleNGe GEDs have low attrition rates in the Army and Marine Corps—the second and third lowest of their respective Tier 1 groups. In the Navy and Air Force, though, ChalleNGe GEDs have very high attrition rates—the highest of any education group in any tier. Although an AFQT score of 50 and above is associated with even lower attrition for ChalleNGe GEDs in the Army and Marine Corps, we did not find a large effect in the Navy and Air Force. ChalleNGe GEDs are more likely than HSDGs to separate for misconduct, failure to adapt, and defective enlistment (which includes erroneous entry, misrepresentation, and breach of contract).

The enlistment tiers do not always reflect the attrition patterns. Specifically, two Tier 1 groups—one semester of college and adult education—have higher attrition than those holding a certificate from a correspondence school in each Service (a Tier 2 credential). At least one of these two groups in each Service has higher attrition than recruits holding a certificate from an occupational program or for high school attendance (also Tier 2 credentials).

Other performance measures

Both home school and ChalleNGe GEDs have high rates of pre-service positive drug tests (2.6 percent and 2.7 percent, respectively, compared to 1.3 percent of public school graduates). Home school graduates with AFQT scores of 50 and above, however, have a lower rate of positive drug tests than public and private high school graduates (1.1 percent).

The average AFQT score of both home school graduates and public school graduates is 59. ChalleNGe GEDs, on the other hand, have the lowest average AFQT score of any education category (50).

Interest in military service

Although home school youth have a low enlistment propensity for every Service, home schoolers express a higher interest in participating in Junior Reserve Officers' Training Corps (JROTC) than youth

in general. One way to boost home schoolers' interest in military Service is to make JROTC programs available to them. A small minority of home schoolers indicated they had access to a JROTC program.

In contrast to home schoolers, ChalleNGe youth—both current participants and program graduates—have an enlistment propensity for every Service that far exceeds that of the general youth population.

Recommendations

Based on our findings, we make the following recommendations:

- **DOD should consider placing home school graduates with AFQT scores of 50 and above in Tier 1, and the rest in Tier 2.** Home schoolers with high AFQT scores have low attrition, so the Services should place them in Tier 1. This recommendation is based on our 1-year tracking of the recruits and should, therefore, be validated as the pilot program matures, enabling the tracking of recruits for a longer period.

- **Encourage JROTC units to reach out to home schoolers.** The Services should encourage JROTC units to reach out and accept qualified home schoolers. They should consider accepting applications from home school associations for JROTC charters.

- **The Army and Marine Corps should consider petitioning DOD to place ChalleNGe recruits in Tier 1. The Navy and Air Force should consider placing them in Tier 2.** The Army and Marine Corps should seek to place ChalleNGe graduates with GEDs in Tier 1. In the Navy and Air Force, these recruits have high attrition, so these Services should seek to place them in Tier 2.

- **DOD should consider consolidating the oversight of education credentials to education specialists reporting directly to DOD.** Consolidation of the oversight of education credentials to education specialists reporting directly to DOD, rather than the individual Services, would promote more uniform standards and consistency. Education specialists working for DOD would be more independent and in a better position to minimize misclassifications than those reporting to the individual Services.

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- **Conduct an inspection to determine the reasons for credential misclassification.** It would be beneficial to determine the reasons for the misclassification of recruits' education credentials in the electronic personnel files. This can be done by comparing a sample of service (paper) records to the electronic records.

Introduction

Background

The Conference Report of the National Defense Authorization Act for Fiscal Year 1999 directed the establishment of a 5-year pilot program requiring the military Services to treat graduates of home schools and graduates of the National Guard Youth ChalleNGe Program holding General Education Development (GED) diplomas as Tier 1 for enlistment eligibility purposes [1]. The law limited the program to no more than 1,250 participants per Service per year for a combination of these two types of recruits.

The Department of Defense classifies enlisted accessions into three tiers based on their education credentials. Current DOD accession standards require that at least 90 percent of accessions be Tier 1, although the Services can set higher standards if they desire. Tier 1 recruits are primarily high school diploma graduates (HSDGs), Tier 2 recruits are primarily GEDs, and Tier 3 recruits are high school dropouts with no credentials.

The placement of home school graduates and ChalleNGe graduates with GEDs in Tier 1 is important because enlistment tiers are intended to be based on attrition characteristics—with Tier 1 recruits having the lowest attrition. HSDGs, who compose the bulk of Tier 1, have historically had relatively low attrition rates. Recruits in Tiers 2 and 3 generally have had higher attrition.

Another important reason for placing home school graduates and ChalleNGe Program graduates with GEDs in Tier 1 is the competition among the Services for Tier 1 recruits. Conversely, because the Services can bring in only a limited number of recruits in Tiers 2 and 3, these recruits are demand-constrained—only some of these applicants are able to join the military each year. Unless they obtain an enlistment waiver, recruits in Tiers 2 and 3 must score in the 50th or

higher percentile on the nationally normed Armed Forces Qualifications Test (AFQT).

The law establishing the 5-year pilot program contained a requirement that the government evaluate the program's effectiveness. It also required a recommendation on the permanent tier status of the two types of recruits. For this purpose, the Directorate for Accession Policy, Office of the Assistant Secretary of Defense (Force Management Policy), asked CNA to assess how home school graduates and ChalleNGe graduates with GEDs compare to other recruits, particularly HSDGs. Specifically, they asked CNA to address the following:

- Early separation rates

- Reasons for early separation

- Other measures of performance, such as positive results on drug tests

- Interest in military service

- Effective ways to attract qualified home school and ChalleNGe Program youth to the military.

About home schooling

The first focus of our study is on home school recruits. There is no single governing body of home schoolers. Furthermore, there is no single definition of home schooling. To help delineate what constitutes home schooling, we conducted a nationwide survey of home school associations. The survey included questions about provision, supervision, and location of home school instruction. Our section on data and methodology in this document gives details on our survey of home school associations.

Instruction supervisors

Nearly all home school associations (98 percent) cited the parents as acceptable primary supervisors of the home instruction program. Also, 74 percent included a guardian; 51 percent, a grandparent; 27 percent, another teacher (not a member of the family); and

26 percent, a private school official. Other responses included other relatives, a family friend, and a teacher from a public school. Respondents could select more than one response.

Instruction location

Virtually all home school associations cited the child's home as an acceptable location for home instruction. However, 45 percent included another home; 31 percent, a place of worship; 24 percent, free or donated space; and 19 percent, a rented space. Furthermore, 18 percent of the associations indicated that a private school could be the primary location of the home school instruction.

To summarize, according to the home school associations, home schooling can occur in a number of locations and the instruction can be provided by a variety of individuals. This means that a wide range of situations, from a mother teaching one child in a private home to a teacher working with a group in a private school, may constitute home schooling.

Home schooling under state laws

We summarized the options and requirements home schoolers have under state laws using data collected by the Home School Legal Defense Association (as of March 2000). Appendix A contains these options and requirements in each state.

Legal options

Home schooling is legal in every state. Each state has at least one and as many as five different legal options for home schooling. We found that 34 states have an option to establish an independent home school. That is, these states allow families to home educate their children without having to be affiliated with or approved by a third party (such as a private school or the local school board).

Fifteen states allow individuals to operate a home school as a "private school." These private schools do not need to be certified. In eight states, home schoolers have an explicit option to operate an "umbrella school"—a home school as an extension or satellite of a

private school. An umbrella school may be a legally incorporated group of home school families.

Other legal options for home schooling are the use of a private tutor (seven states), the operation of a home school under a religious exemption statute (six states) and under the auspices of a home school association (two states), and the provision of home instruction through an approved correspondence program (two states). A final option, available only in California, is an independent study program through a public school or as a satellite of a private school.

Home schoolers have to meet a variety of state-mandated requirements concerning curriculum, notification to authorities, learning assessment, record keeping, and teacher qualifications.

Curriculum

Forty-three states require that specific subjects be taught in the home school program. Although most of these states specify the subject areas, other states require the same subjects as the public schools or subjects "as prescribed by the supervising program."

Notifying authorities

Forty states require home schoolers to file a notice of intent with the local school superintendent, local school board, state department of education, or private school principal (required annually in most of these states). Other states require notification to authorities when withdrawing from a public school.

Assessment and testing

Thirty-one states have learning assessment requirements. Twenty-two of these states require standardized testing. Other states allow for the child to be evaluated by a qualified professional selected by the parents.

Record keeping

What records are home schoolers required to keep? Twenty-eight states have record-keeping requirements, including a portfolio (eight states), a transcript (six states), instruction plans (four states), and textbooks (two states).

Teacher qualifications

Twenty states require some form of teacher qualification, but most of these simply require a high school diploma, a GED, or proof that the instructor is "capable of teaching." Eight states require a teacher certification and two require a college education, but these states have other options, such as a religious exemption clause, with less stringent teacher qualifications.

In summary, in many states home school parents have several legal options to home educate their children. The legal requirements for home schoolers vary significantly across the states. The extent to which these requirements are enforced also varies significantly across the states.

Existing evidence about home schoolers

Number of home schoolers

According to a study by the U.S. Census Bureau [2], there were 790,000 home school students in the spring of 1999. A separate study by the U.S. Department of Education [3] placed the number at 850,000 for the same period. That is, home schoolers represented almost 2 percent of students in K–12 and approximately 15 percent of the privately schooled population.

Home schoolers' grade level distribution approximates that of the general student population, according to the U.S. Department of Education study. Although the most common reasons for home schooling are dissatisfaction with the local schools and promoting religious values, there are many reasons for families to home educate their children.

The home school population appears to be increasing rapidly. For example, according to another U.S. Department of Education study [4], the home school student population grew between 7 and 15 percent from 1995–96 to 1996–97 in the states for which reliable data were available.

Academic achievement

Based on academic test data, the National Home Education Research Institute (NHERI) found that, on average, home schoolers attained high scores on academic achievement tests. For example, home schoolers' average scores were at or above the 80th percentile on reading, language, math, science, social studies, and study skills. In a review of eight separate studies, the home educated scored 8 to 35 percentile points above the average U.S. public school student on academic achievement tests [5].

Post-high-school experiences

The NHERI study found that, immediately after high school graduation, home schoolers have the following experiences:

- Military: Less than 1 percent

- Full-time, 4-year college: 25 percent

- Full-time employment: 17 percent

- Combination of education and employment: 12 percent

- Part-time employment: 10 percent

- Full-time community college: 8 percent

- Trade or business school: 2 percent

- Unknown/not defined: 25 percent.

In comparison, 3 percent of all U.S. high school graduates and GED recipients entered the military (within 2 years). Twenty-two percent enrolled in a post-secondary school on a full-time basis, 34 percent went into full-time employment, and 33 percent went into part-time employment [6]. Thus, home schoolers are more likely than high school graduates and GED recipients to pursue post-secondary studies.[1]

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1. If home schoolers for whom post-high-school experiences are unknown attend college at the same rate as other home schoolers, the percentage of home schoolers going to college full time after high school is 41 percent.

About the ChalleNGe Program

The second focus of our study is on graduates of the National Guard Youth ChalleNGe Program holding GEDs. The ChalleNGe Program targets "at risk" youth who are high school dropouts or expellees between the ages of 16 and 18 and who are not in trouble with the law (not on parole or probation). It consists of a 22-week residential phase conducted in a quasi-military environment, followed by a mentoring phase.

Program goals

Congress initially authorized the ChalleNGe Program in FY 1993. The stated goal of the program is to improve participants' employment potential and life skills. Subjects covered may include financial management, sex education, and drug avoidance.

Another goal of the ChalleNGe Program is to help participants—referred to as "cadets"—obtain a GED through instructor-led and computer-based GED instruction. The National Guard Bureau manages the ChalleNGe Program through agreements with state governors.

Cadets receive free classroom instruction, room and board, and a small weekly allowance for personal expenses. The program pays the fees for participants to take the GED exam. Cadets perform volunteer work for the local communities.

The residential phase is divided into a 2-week pre-ChalleNGe component and a 20-week ChalleNGe component. The objective of the pre-ChalleNGe component is to provide program staff the opportunity to identify applicants who are motivated to complete the entire program. ChalleNGe Program eligibility standards require that participants be free from use of illegal substances.

The ChalleNGe Program is the only multi-state, residential youth program with a military focus. The organization is similar to military boot camp. Cadets form platoons, march, and engage in intensive physical training. After the residential program, many of the program graduates establish a relationship with a mentor that may last for up to a year.

Twenty-six states and territories participated in the ChalleNGe Program in 2000. A total of 4,500 students graduated from the program during the period, for a cumulative total of more than 25,000 since the inception of the program [7]. Cadets most commonly cite the desire to obtain a GED and to develop self-discipline as the main reasons to join the program.

Post-graduation experiences

Two years after graduation from the program, ChalleNGe youth report the following experiences [7]:

- Military: 29 percent

- Employment: 33 percent

- A combination of employment and education: 13 percent

- Two-year college: 13 percent

- Four-year college: 7 percent

- Vocational training: 5 percent.

ChalleNGe Program graduates are 9 times more likely than high school graduates and regular GED recipients to enter the military.

Data and methodology

Sources of data

To identify education credentials earned, we administered a survey to a large sample of new recruits. To assess the level of interest in military service among home school and ChalleNGe youth, we conducted a special collection of the Youth Attitude Tracking Study (YATS). Finally, to assess how military recruiters can reach out to home school graduates, we conducted a survey of home school associations.

Survey of recruits

We administered the Survey of Recruits' Education and Background to a large sample of new recruits who enlisted during the 12-month period ending in February 2000. We pre-tested the questionnaire with about 600 recruits at the Marine Corps Recruit Depot in Parris Island, South Carolina, and at several Army basic training sites. We then administered the survey at all basic training sites for the four Services.

Recruits completed the survey during in-processing, by the second day of boot camp. This allowed us to identify those recruits whose separation began on arrival at boot camp because of medical tests and disclosures they made to drill instructors. Appendix B contains a copy of the recruit survey instrument.

Why did we need a recruit survey? First, we wanted to verify the education credentials on the electronic personnel files maintained by the Defense Manpower Data Center (DMDC). The education data residing on the DMDC files are often captured months before recruit training begins. In the interim, from data entry to the start of recruit training, many recruits complete education credentials—these recently earned education credentials may not appear at all in the DMDC files.

Second, each of the Services has a "moment of truth" at boot camp that gives recruits the chance to correct erroneous entries in their records. These corrections sometimes involve educational backgrounds, and we doubted these changes were reflected in the electronic files.

Furthermore, we needed the recruit survey especially for identifying all home school graduates. For example, home schoolers who participate in instructor-led "umbrella schools" may erroneously appear as HSDGs on the DMDC files. Many home schoolers attend umbrella schools to enroll in courses that the parents do not feel comfortable teaching.

In addition, many home schoolers in California participate in classes and activities in public high schools and obtain a high school diploma from the school. These home schoolers would appear as HSDGs, not as home schoolers, on the personnel files. Finally, the Marine Corps codes home schoolers differently from the other Services. For all of these reasons, it was not possible to identify all home schoolers in the DMDC data.

We collected 67,091 surveys from enlisted active duty recruits—more than one-third of all recruits during the year—from each Service as follows:

- Army: 24,172 (March 1999 to August 1999)[2]

- Navy: 17,547 (September 1999 to February 2000)

- Air Force: 14,877 (May 1999 to December 1999)

- Marine Corps: 10,495 (May 1999 to January 2000).

Because it was impractical to review the actual paper education credentials during our survey, we asked several questions about the type of credentials received. To examine attrition levels and other performance measures, we matched the recruit survey data to these DMDC

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2. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) generously integrated our survey items into their Soldier Reception Survey.

personnel files: the active duty file, the active duty loss file, and the Military Entrance Processing Command (MEPCOM) edit file.[3]

In addition to questions concerning education credentials, the recruit survey asked about disciplinary problems in high school and pre-service smoking. It also asked for self-reported measures of personal drive, responsibility, and importance given to physical fitness, among other things.

Sample

We screened out all recruits with prior service (53 individuals) from our sample. We also screened out home school recruits who entered the Navy between March 1999 (the first month of the recruit survey) and July 1999 (inclusive). We did this because of concerns that the Navy may have admitted high school dropouts claiming to be home schooled during the early months of the pilot program. The Navy issued tighter guidelines for home school accessions at the end of July 1999.

We made other minor alterations to the data. Seventy-eight individuals had missing or out-of-range AFQT scores. To account for this, we created a variable to indicate "missing AFQT score" and assigned the mean AFQT score (58.9) to these individuals.

In addition, we recoded the records of 50 recruits who left the Service and reenlisted immediately. These individuals most likely entered officer programs. We identified these cases as continuation of service, rather than attrition.

We asked recruits in the recruit survey to indicate the type of school they attended for each finished grade from 1 to 12. We screened out 386 records for recruits who skipped this question completely. For recruits who indicated the type of school for the last year completed only, we assumed they attended the same type of school for all grades.

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3.   We successfully matched 96 percent of the surveys to the active duty file. Most of the unmatched surveys were for reservists, who were beyond the scope of this study.

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In some cases, recruits reported attending two different types of schools in the same year. In this case, we assumed the recruit switched schools during the year and gave credit to the "new" type of school. For example, a recruit indicated "public school" for the first 10 years, but marked "public school" and "GED" for the 11th grade. In this case, we inferred that the recruit completed 10 years of public school, began but did not complete 11th grade, and then earned a GED.

We were unable to assign 552 recruits to any educational category because their surveys contained other types of incomplete or contradictory information. For example, some of these recruits listed a diploma from a traditional high school but also indicated they have no diploma. We assigned all these recruits to an "other education" category.

How did we identify home school graduates?

We identified recruits as home school graduates if they satisfied the following four conditions:

- Hold a diploma from parents, tutors, an association, or an umbrella school for home schooling

- Completed 12th grade at home (or graduated early after being schooled at home)

- Were not expelled from high school

- Completed 2 or more years of home schooling.

We identified home school graduates this way based on the responses to our survey of home school associations (described later). We sought to avoid classifying as home schoolers individuals who were expelled or urged to leave their public high school. A general characteristic of home schooling is that the parents—not school or government officials—control the curriculum. Appendix C includes the detailed data algorithm we used to identify home school graduates.

We counted the number of years of schooling completed at home. Of the 67,091 recruits surveyed, 1,960 had been schooled at home at some point between grades 1 and 12. Nearly half of these (817) reported only 1 year of classes at home. In comparison, 292 reported that they completed 4 or more grade levels at home. We identified a total of 565 home school graduates in our sample.

Youth Attitude Tracking Study (YATS)

The YATS is a comprehensive, nationally representative survey of American youth aimed primarily at assessing the likelihood that they will enlist in the military. Because the available YATS data did not contain enough observations on our two groups of interest for us to assess their interest in military service, we conducted a special collection of the YATS.

We conducted telephone interviews with 439 home schoolers and 357 ChalleNGe Program participants (including 110 program graduates). The men and women interviewed were 16 to 21 years old at the time. We conducted the interviews in October–November 2000, two years after the pilot program placed these groups in Tier 1.

To make the samples consistent with the regular YATS, we excluded youth who were or had been in the military, or who were waiting to leave for basic training. In addition, we excluded youth attending a military service academy or participating in a college Reserve Officers' Training Corps (ROTC) program.

To compare the home school and ChalleNGe youth with the general youth population, we combined our YATS data with the 1999 regular YATS (the latest available). We used about 60 percent of the items from the 1999 regular YATS questionnaire in our survey.[4] Westat, Inc., conducted the telephone interviews as our contractor.[5]

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4. Our YATS instrument is available from the Center for Naval Analyses.

5. We made 79 telephone calls to home schoolers that did not produce complete interviews. The primary reasons were that we had incorrect or nonworking phone numbers or that the youth refused the interview or ended the interview before completion. For ChalleNGe cadets, we made 11 telephone calls that did not result in complete surveys. The primary reason was that the youth was no longer in the program. Finally, we made 155 telephone calls to ChalleNGe Program graduates that did not result in interviews. The primary reasons were that we had nonworking numbers, that we could not contact the youth at the number provided, or that the youth was above the age limit for the interview.

Home school youth

The home school population overall is largely evangelical Christian. According to survey results in [5] and [8], 83 percent of home schoolers are evangelical Christian. Also, an estimated 80 percent of home schoolers belong to an association or support group [9].

The home school sample we obtained differed somewhat from the overall home school population. In our YATS sample of home schoolers, 90 percent were evangelical Christian and 89 percent were affiliated with a home school association or support group. We obtained our sample of home school youth from the National Home Education Research Institute.

To reflect the characteristics of the overall home school population, we applied weights to our sample. We weighted more heavily the responses from nonevangelical Christians and those not affiliated with a home school association. See appendix D for the method we used to apply sample weights to the survey responses.

Our home school youth sample included respondents from 40 states. They represented all employment situations: currently employed, not employed but looking for work, and not employed and not looking for work (including full time secondary-level and college students).

ChalleNGe youth

Cadets. We interviewed cadets actively participating in the ChalleNGe program in October–November 2000 whose social security numbers ended in "2" or "4." This produced a large enough random sample to satisfy our requirement. All respondents, however, were expected to graduate from the program and earn a GED. Cadets were from each of the 24 states with an operational ChalleNGe Program at that time.

Program graduates. We also interviewed ChalleNGe Program graduates to determine whether interest in military service changes significantly after graduation from the program. We obtained our sample of program graduates from the ChalleNGe Monitoring and Evaluation Information System (CHAMEIS), the program's administrative database. To produce a random sample, we interviewed graduates whose social security numbers ended in "2" only. The final sample included ChalleNGe graduates in each state with a program site at the time.

Survey of home school associations

To gather information about what constitutes home schooling, we conducted a survey of home school associations in April 2000. This survey helped us identify effective ways for military recruiters to reach out to home schoolers. Appendix E contains a copy of the instrument we used for this survey.

We mailed questionnaires to the heads of all statewide associations listed on two prominent home schooling Internet sites in December 1999.[6] We also mailed questionnaires to a sample of heads of local support groups from each state that had at least one of these organizations listed on the Internet sites.

Home school associations and support groups allow families to pool resources, swap educational materials, share ideas, and provide socialization opportunities for the children (for example, through field trips and sports events). The associations are often statewide (or cover multiple states) and may have local support groups as affiliates.

We mailed 606 questionnaires; 22 surveys were returned to us as undelivered. The response rate from the remaining surveys was 51 percent.

Responses

The responses to our association survey reflect the opinions of home school leaders nationwide. The sample included organizations in all 50 states, covering large cities, small towns, and rural areas. The sample included 127 associations (21 percent) that were not affiliated with the Home School Legal Defense Association (HSLDA), the largest home school advocacy group.

The associations were diverse in religious orientation, home school philosophy, and characteristics of the members. Of the 606 associations in our sample, we identified 490 (or 81 percent) as evangelical Christian. The remaining 116 associations (19 percent) were identified as something other than evangelical Christian or were not identifiable in terms of religious orientation.

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6. The two Internet sites were *Homeschool World* (www.home-school.com) and *A to Z Home's Cool* (www.gomilpitas.com/home schooling).

The response rate for the associations affiliated with the HSLDA was 52 percent. For the other associations, the response rate was 34 percent. That is, the non-HSLDA associations made up 13 percent of all the responses. To reflect the 21-percent representation of non-HSLDA associations in the population, here again we weighted the sample. (See appendix D for the method we used to weight the sample.)

Method of analysis

Classification of recruits

We matched our recruit survey data to DMDC personnel files and found that the educational credentials coded in the personnel files often differed from those reported by the recruits themselves.[7] We believe the recruit surveys are more accurate for several reasons. First, we administered the survey by the second day of in-processing at boot camp, so we expect the information to be more up-to-date than what was reported at an earlier date. Second, recruits completed our survey soon after going through "the moment of truth," when drill instructors press recruits to be honest about their personal records, including their education.

Furthermore, we believe the education credentials in our recruit survey data to be more accurate because, as our findings will show, recruits' AFQT scores and subsequent attrition behavior validate the self-reported education credentials. Finally, recruits had little incentive to misrepresent their credentials on the survey.

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7. We compared the education credentials that recruits reported to us in the survey with DMDC's two-digit education code. This code identifies home schoolers with a "25" and ChalleNGe graduates with a GED with a "27." We also had DMDC's alphanumeric code for education credentials. We found that DMDC's numeric code was more up-to-date than the alphanumeric code. For example, many recruits classified as "high school senior" by the alphanumeric code were classified as HSDGs in the numeric code, reflecting the fact that most of the high school seniors graduated before starting boot camp.

We separated recruits for whom the DMDC files misclassified their education credentials into "overclassified" and "underclassified." Specific definitions follow:

- **Overclassified**. We identify recruits as being overclassified if personnel files report a credential that puts them in a higher tier than the credential they report to us in the survey. The DMDC personnel files can overclassify recruits in one of the following ways:

  - *Overclassified from Tier 3 to Tier 1.* For example, a recruit appears as an HSDG in the DMDC files but reported to us on the survey as having no credential at all.

  - *Overclassified from Tier 3 to Tier 2.* For example, a recruit appears as a GED holder in the DMDC files but reported to us in the survey as having no credential.

  - *Overclassified from Tier 2 to Tier 1.* For example, a recruit appears as an HSDG in the DMDC files but reported to us as having a GED only.

- **Underclassified**. We identify recruits as being underclassified if they reported to us in the survey an education credential that qualifies them for a higher enlistment tier than that appearing in the DMDC file. For example, a recruit reports to us in the survey that he has a regular high school diploma, but his electronic personnel file may indicate that he has a certificate for high school attendance (a Tier 2 credential).

Attrition levels

Premature separation from military service is costly because the Services need to recruit and train replacements. Research on attrition has consistently found that early separation is higher among recruits who have failed to earn a high school diploma [10]. Enlisting HSDGs is a primary recruiting goal.

Measures of attrition

We established a baseline measure of attrition at the 12-month point, that is, we checked to see if the recruit was still in the military one year

after entry. We used 12-month attrition measured in December 2000, the most recent period available. We were able to define attrition for recruits we surveyed before December 1999 only (58,951 recruits).

A significant proportion of first-term attrition occurs within the first year and differences in end-of-contract attrition rates tend to be consistent with those observed early. Thus, our 12-month attrition rate is an appropriate performance measure.

Comparing attrition rates between two Services is not valid because we collected the recruit survey data at different times of the year for each Service. For example, the Army data cover the first 6 months of the 12-month period ending in February of 2000, whereas the Navy data cover the last 6 months.

We express the recruiting totals for the full 12-month period ending in February 2000 by making adjustments for seasonality. For each credential and Service, we multiplied the number of recruits identified in the survey by the following ratio: the number of recruits identified by DMDC for the 12-month period divided by the number of recruits identified by DMDC for the same period for which we have survey data (about 6 months per Service).

Thus, for example, if one of the Services front-loaded a particular group of recruits for the period in which we have recruit survey data, the adjustment factor would prevent an unreasonably high estimate of the annual number of this group.

Because DMDC home school data from October 1998 through August 1999 for the Navy were suspect, we used a scale factor based on overall number of recruits for the 12-month period divided by the number of records in the recruit survey.[8]

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8. We also used this scale factor to determine the total number of individuals holding an occupational program certificate in the Army and Marine Corps because the DMDC numbers were too small (less than 10 recruits each).

Regression analysis

To understand the factors that affect attrition, we performed regression analysis. In addition to the education credential—which includes home school diplomas and graduation from the ChalleNGe Program with a GED—we controlled for other personal and background variables. These variables included the following:

- Possession of an enlistment waiver

- AFQT score

- Self-reported importance of various qualities, including patriotism, responsibility, and personal drive

- Self-reported levels of pre-service smoking and drinking

- Participation in high school extra-curricular activities

- Age

- Race and ethnicity

- Marital status

- Military occupation.

Regression analysis allows us to examine the effect of each variable, independent of the effect of the other variables. It allows us to examine the effect of a specific education credential while holding constant other variables.

Reasons for attrition

Recruits separate from military service before expiration of their term of enlistment for many reasons. Using the DOD separation codes, we grouped the reasons into the following categories:

- *Medical.* These losses pertain to recruits who are separated because of a disqualifying health problem or disability that the Service did not previously know about. Examples of disqualifying health problems are asthma and diabetes. They also include losses resulting from injuries and illnesses occurring during enlistment.

- *Fitness failure.* This includes failure to satisfy weight and fitness standards.

- *Misconduct.* In some cases, recruits are separated because of drug and alcohol abuse, desertion, and dereliction of duty.

- *Failure to adapt.* This includes personality disorders and unsatisfactory performance, among other reasons.

- *Defective enlistment.* This covers erroneous and fraudulent entry (such as for pre-service alcohol and drug abuse, misrepresentation, and breach of contract).

- *Other and unknown loss reasons.* This includes other types of losses affecting relatively few recruits, such as family care and admission of homosexuality. It also includes losses for unknown reasons.

We should point out that the accuracy of the DOD loss codes is questionable. In some cases, the assigned code reflects convenience rather than the real reason for the loss. Nevertheless, summarizing the loss codes across the Services sheds some light on why home school and ChalleNGe recruits leave early. Appendix F contains our detailed categorization of the personnel losses.

Using a DMDC data file, we identified recruits who tested positive for drugs. Recruits were tested at the MEPCOM, but the results were not known until after the recruits were in boot camp. Recruits with positive drug tests received a discharge or an enlistment waiver.

Interest in military service

To assess the level of interest in military service among youth in our two groups of interest, we calculated their "enlistment propensity" from our YATS. Enlistment propensity measures the proportion of youth who answered "Definitely" or "Probably" when asked: "How likely it is that you will be serving in the military or a specific Service within the next few years?"

Education credentials of recruits

The military Services enlisted 183,895 non-prior-service active duty recruits in the year ending in February 2000 (the period for which we had recruit survey data). The numbers by Service were as follows:

- Army: 69,093
- Navy: 52,404
- Air Force: 30,796
- Marine Corps: 31,602.

The overall numbers of recruits who are home school graduates and ChalleNGe graduates with GEDs are very small. Based on our recruit survey for the year ending in February 2000, all Services combined enlisted 1,533 home school graduates (0.8 percent of the total) and 752 ChalleNGe GEDs (0.4 percent of the total).

The combined number of home school and ChalleNGe recruits was well below the 5,000 annual goal (1,250 per Service) put forth by the law establishing the pilot program. Table 1 shows the distribution of education credentials under each tier for enlisted recruits in each Service according to our survey and DMDC files.

Home schoolers

The percentage of non-prior-service enlisted accessions composed of home schoolers in each Service for the year ending in February 2000 follows (in descending order):

- Navy: 1.2 percent
- Air Force: 1.0 percent
- Army: 0.6 percent
- Marine Corps: 0.6 percent.

ChalleNGe participants

The percentage of accessions made up of ChalleNGe GEDs in each Service follows (again in descending order):

- Army: 0.5 percent

- Navy: 0.4 percent

- Marine Corps: 0.4 percent

- Air Force: 0.2 percent.

Table 1.   Education credentials based on recruit survey and DMDC data[a]

Tier/education credential	Army Survey	Army DMDC	Navy Survey	Navy DMDC	Air Force Survey	Air Force DMDC	Marine Corps Survey	Marine Corps DMDC	DOD Survey	DOD DMDC
Tier 1										
Home school	0.6	0.2	1.2	0.6	1.0	0.2	0.6	0.3	0.8	0.3
ChalleNGe grad. with GED	0.5	0.2	0.4	0.5	0.2	0.0	0.4	0.6	0.4	0.3
Public school	72		68		84		78		74	
Private school	3		5		5		5		4	
High school graduate total	76	85	73	76	88	96	83	90	78	85
Adult education	2	1	3	3	3	0.1	2	2	3	2
College semester: Academic[b]	2.6		3.1		2.4		2.5		2.7	
College semester: Vocational	0.9		0.8		0.4		0.5		0.7	
College semester total	3.5	1.7	3.8	2.7	2.8	0.4	2.9	1.1	3.4	1.7
College: 2 years[c]	2.1	0.8	1.6	0.7	2.0	1.2	0.7	0.4	1.7	0.8
College: 4 years or more	3.4	2.0	1.3	1.1	3.6	0.9	0.5	0.4	2.3	1.3
TIER 1 TOTAL[d]	82	88	81	83	96	97	90	94	86	89
Tier 2										
GED	8	8	8	7	1	1	2	3	6	6
Occupational program	1.2	0.0	1.0	0.0	0.8	0.1	1.3	0.0	1.1	0.0
H.S. attendance or completion	2.3	0.0	2.8	0.1	1.6	0.1	2.6	0.8	2.4	0.2
Correspondence school	0.3	0.0	0.3	0.0	0.2	0.0	0.9	0.0	0.3	0.0
TIER 2 TOTAL[d]	12	9	12	8	3	1	7	4	10	6
Tier 3										
No high school credential	6	0	7	6	1	0.1	3	0.4	5	2
All recruits[e]	100	100	100	100	100	100	100	100	100	100

a. Non-prior-service recruits for the 12-month period ending in February 2000.
b. Academic colleges usually have semester or quarter-hour schedules, while vocational colleges often have clock-hour schedules.
c. Recruits who completed 2 years of college or more would qualify for Tier 1 with other credentials, such as a regular high school diploma or one semester of college. Thus, we do not count them separately in the total number of recruits.
d. Totals may not add to the precise number because of rounding.
e. The number of accessions for this 12-month period includes 1,562 recruits (less than 1 percent of the total) for whom we had incomplete education credential data.

Other recruits

According to our recruit survey, the Army and the Navy were not complying with the DOD-established goal of up to 10 percent of accessions in Tiers 2 and 3. During the year, recruits in Tiers 2 and 3 made up 12 and 6 percent of the Army's accessions, respectively. In the Navy, recruits in Tiers 2 and 3 represented 12 and 7 percent.

In the Air Force, recruits in Tiers 2 and 3 made up 3 and 1 percent of the total. In the Marine Corps, recruits in Tiers 2 and 3 made up 7 and 3 percent. Furthermore, in the Air Force and Marine Corps, GEDs represented less than one-third of Tier 2. In the Army and the Navy, GEDs made up about two-thirds of Tier 2.

The Air Force has the highest percentage of HSDGs (88 percent), followed by the Marine Corps (83 percent). In the Army and the Navy, 76 and 73 percent of recruits are HSDGs, respectively.

The number of enlisted recruits with college degrees is small. Recruits with 2 years of college make up from less than 1 percent of the total in the Marine Corps to 2 percent in the Army. Recruits with 4 years of college or more make up from less than 1 percent of the total in the Marine Corps to 4 percent in the Air Force.

Findings

Misclassification of recruits

According to our survey, many recruits who are listed as Tier 1 in the personnel files should be classified as Tier 2 or 3.[9] From the match of the recruit survey to the DMDC personnel files, we found that personnel files overclassify 8 percent of recruits for the four Services combined. On the other hand, personnel files underclassify 2 percent of recruits (see figure 1).[10]

The degree of overclassification to Tier 1 varies by Service. In the Navy, 8 percent of all recruits are overclassified into Tier 1—the highest rate of the four Services. The Air Force overclassifies the fewest recruits into Tier 1, 4 percent. The Army and Marine Corps overclassify 5 percent and 7 percent of recruits into Tier 1, respectively. Most recruits overclassified to Tier 1 report to us in the survey that they have a Tier 2 credential, often a GED.

Overclassification to Tier 2 is highest in the Army, involving 3 percent of recruits. It is lowest in the Air Force, where only 0.1 percent of recruits are placed in Tier 2 incorrectly. The Navy and Marine Corps each overclassifies 1 percent of recruits into Tier 2.

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9. The Military Enlistment Processing Reporting System (MEPRS) collects and documents information about applicants, including their education credentials. The Military Entrance Processing Command (MEPCOM) maintains the MEPRS.

10. We also observed within-tier misclassification in some cases. That is, the education credential in the DMDC files did not match the credential they reported to us in the survey, but both credentials qualified the recruit for the same enlistment tier. For example, a recruit appeared as an HSDG in the DMDC files, but reported to us in the survey having an adult education diploma.

Figure 1.   Percentage of recruits whose education credentials are mis-
classified in the DMDC files[a]
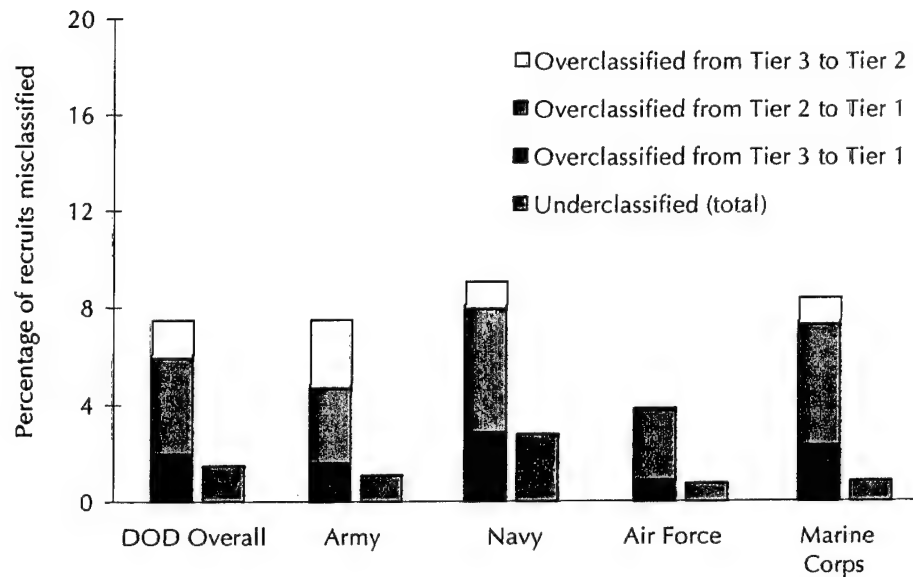
Underclassification of recruits' education credentials also occurs, although to a smaller degree than overclassification. Underclassification is highest in the Navy, affecting 3 percent of recruits. The Army underclassifies 1 percent of recruits. The Air Force and the Marine Corps have the lowest underclassification rates, each slightly less than 1 percent.

Although both the recruit survey and the DMDC file are likely to contain occasional errors, we expect random errors would produce about equal amounts of overclassification and underclassification. Here again we point out that, when the two sources disagree, we believe the recruit surveys are more accurate for two main reasons. First, we collected the recruit survey data by the second day of boot camp so we expect the information to be more accurate than what was reported at an earlier date. Second, recruits completed our survey soon after going through "the moment of truth," when recruits are pressed to be honest about their personal records, including their education.

Why does overclassification occur?

Although it is possible that some of the overclassification constitutes fraud on the part of recruits and recruiters, we are not able to determine to what extent this is the case. Another possible reason for overclassification from Tier 2 to Tier 1 is the proliferation of alternative education credentials from an ever-increasing array of institutions.

Alternative credentials are not always easy to distinguish from regular high school diplomas. For example, some states issue GED diplomas that look *exactly* like regular high school diplomas. In some cases, the only difference is a set of digits on the document whose significance is not readily apparent.

Why would states issue such confusing education credentials? One possible reason is that states have an economic incentive to make as much of the workforce as possible appear to have regular high school diplomas. Investors may consider such statistics when choosing a locality for starting or relocating a business.

Why does underclassification occur?

One possible explanation for personnel files to underclassify recruits is that some survey respondents exaggerate their educational attainment. However, we find mostly the opposite: recruits report having lower levels of education than personnel files indicate.

A second possible explanation for underclassification is that the DMDC data are often captured months before the start of basic training. Therefore, the education data in the DMDC files may not always be up-to-date.[11]

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11. We assume that all recruits DMDC identified as high school seniors earned a high school diploma. If some of these recruits actually dropped out of high school, this would help explain the overclassification. However, this does not explain the degree of overclassification we find because it affects less than 1 percent of the sample and, almost certainly, most of these recruits finished high school before starting boot camp.

How do overclassified recruits behave?

How big a problem is recruit overclassification? If recruits who are overclassified to Tier 1 behave like recruits who report having Tier 1 credentials, then overclassification has minimal policy implications.

We find, however, that recruits overclassified to Tier 1 do not behave like others in Tier 1—they behave like recruits in Tiers 2 and 3. This is very important for two reasons. First, it has significant policy implications. Second, it validates our use of the recruit survey to identify education credentials.

Attrition of overclassified recruits

We find that recruits who appeared in the DMDC files as Tier 1 but reported to us that they have a GED or no credential had higher attrition than recruits classified as Tier 1 in both the recruit survey and DMDC files.

For the four Services combined, the 12-month attrition rate for recruits overclassified to Tier 1 is 17 percent (see figure 2). For recruits classified as Tier 1 in both the survey and the DMDC files, the attrition rate is only 10 percent. Furthermore, we found that the attrition rate of recruits overclassified to Tier 1 is as high as that of high school dropouts.

Attrition for recruits overclassified to Tier 1 is relatively high in each Service. In the Navy, recruits overclassified to Tier 1 have an attrition rate that is 10 percentage points higher than that of "true" Tier 1 recruits. In the Air Force and Marine Corps, the difference is 5 percentage points, and in the Army, it is almost 1.5 percentage points.

AFQT scores of overclassified recruits

Recruits whom the DMDC files identify as Tier 1, but who report to us in the survey that they have a GED or no credential, also fail to look like Tier 1 recruits in terms of their AFQT scores. We find that these overclassified recruits had a significantly lower average AFQT score than recruits who appeared as Tier 1 in the DMDC files and in the recruit survey (see figure 3).

Figure 2. Twelve-month attrition rates for recruits overclassified to Tier 1 in the DMDC files[a]
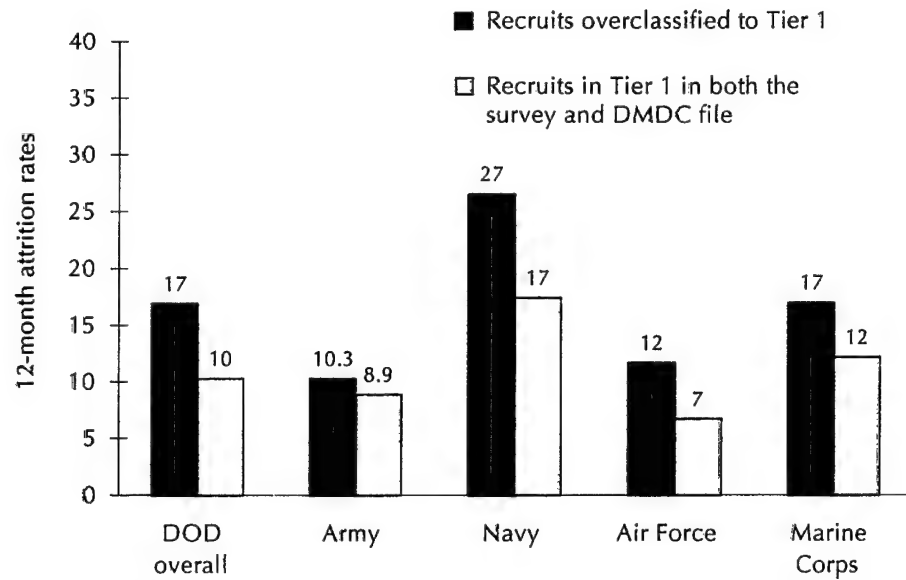
a. Tracked through December 2000.

Figure 3. AFQT scores of recruits our survey identified in Tiers 2–3[a]
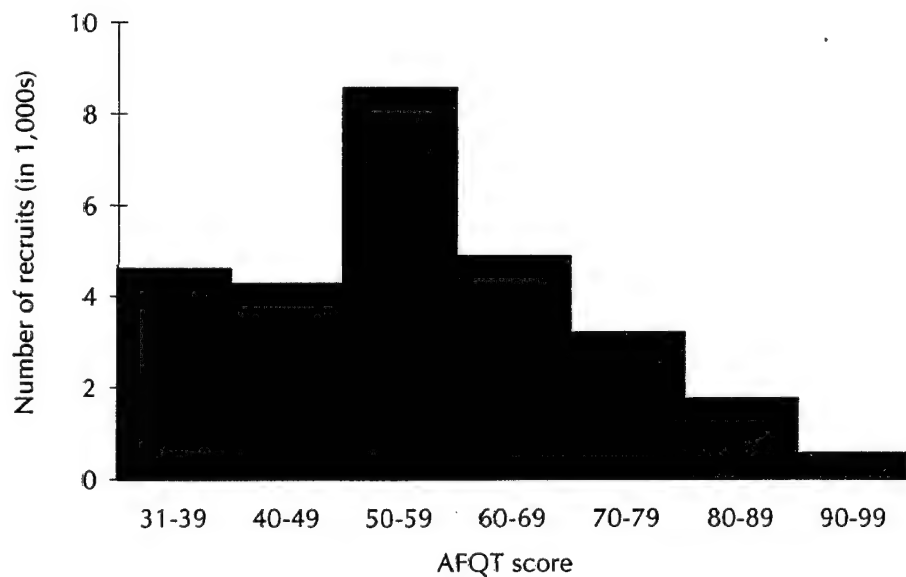
a. Non-prior-service accession who entered in the 12-month period ending in February 2000.

Forty-nine percent of recruits overclassified to Tier 1 have AFQT scores of less than 50. These recruits would not qualify for Tier 2–3 enlistment.

Cost of recruit overclassification

Overclassification of recruit education credentials is costly. It involves the Services bringing in recruits with higher attrition than other recruits in the same Tier. Based on a notional $30,000 cost of recruiting and training replacements, overclassification costs DOD $16 million a year. This is likely to be a conservative estimate because it is based on 1-year attrition rates. The cost is higher if the attrition rate gap of overclassified recruits gets wider over time.

Overclassified recruits' low AFQT scores are also costly. Recruits with weak academic preparation impose a readiness cost because they are less trainable. Other things equal, they are also likely to be less productive at work.

To summarize, recruits whom the DMDC files identify as Tier 1 but who report to us in the survey that they have a GED or no credential at all *do not behave like Tier 1 recruits*. These overclassified recruits have significantly higher attrition and lower AFQT scores than Tier 1 recruits. Overclassification of recruits costs DOD at least $16 million a year.

Attrition

Figures 4 through 8 show the 12-month attrition rates for recruits in the different education categories for the four Services combined and in each branch. Our findings corroborate the importance of education credential as a screening tool for military applicants.

Although overall DOD attrition rates based on the recruit survey do not differ dramatically from those based on the DMDC files, there are notable differences for some education categories in specific Services. The findings we show next are based on the recruit survey to avoid the credential misclassification in the DMDC files.[12] Appendix G provides the attrition rates by education credential for each Service.

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12. As we indicated earlier, it is not valid to compare attrition rates across the Services based on our recruit survey data because we administered the recruit survey at different times of the year in each Service.

Figure 4. Twelve-month attrition rates—the four Services combined[a]

AFQT of 50 and above

		12-month attrition rate	Sample size (n)
TIER 1	Home school	12 / 17	361; 565
	ChalleNGe graduates with GED	15 / 21	106; 253
	Public school	11	51,149
	Private school	13	2,941
	Adult education	16	1,529
	College--4 or more years	8	1,063
	College--2 years	10	1,091
	College semester--academic	15	1,765
	College semester--vocational	17	451
TIER 2	GED	21	3,182
	Occupational program certificate	14	757
	H.S. attendance or completion	14	1,020
	Correspondence school	11	205
TIER 3	No high school credential	17	2,722

12-month attrition rates (x-axis: 0 to 40)

a. Non-prior-service recruits tracked through December 2000.

Figure 5. Twelve-month attrition rates—Army[a]

AFQT of 50 and above

		12-month attrition rate	Sample size (n)
TIER 1	Home school	10	154
	ChalleNGe graduates with GED	3 / 8	32; 80
	Public school	9	18,875
	Private school	8	854
	Adult education	10	485
	College--4 or more years	5	570
	College--2 years	9	415
	College semester--academic	12	543
	College semester--vocational	11	183
TIER 2	GED	10	1,305
	Occupational program certificate	9	300
	H.S. attendance or completion	11	205
	Correspondence school	5	60
TIER 3	No high school credential	7	933

12-month attrition rates (x-axis: 0 to 40)

a. Non-prior-service recruits tracked through December 2000. The Army attrition rate for home school graduates with AFQT scores of 50 and above is not shown separately because they experienced about the same attrition rate as home school graduates overall.

37

Figure 6.   Twelve-month attrition rates—Navy[a]

AFQT of 50 and above

Sample size (n)

TIER 1	Home school	112; 200
	ChalleNGe graduates with GED	35; 88
	Public school	11,414
	Private school	876
	Adult education	528
	College--4 or more years	250
	College--2 years	316
	College semester--academic	660
	College semester--vocational	167
TIER 2	GED	1,513
	Occupational program certificate	173
	H.S. attendance or completion	330
	Correspondence school	51
TIER 3	No high school credential	1,351

Values shown: Home school 19 / 26; ChalleNGe graduates with GED 27 / 35; Public school 17; Private school 20; Adult education 24; College--4 or more years 17; College--2 years 16; College semester--academic 24; College semester--vocational 32; GED 30; Occupational program certificate 26; H.S. attendance or completion 21; Correspondence school 18; No high school credential 29.
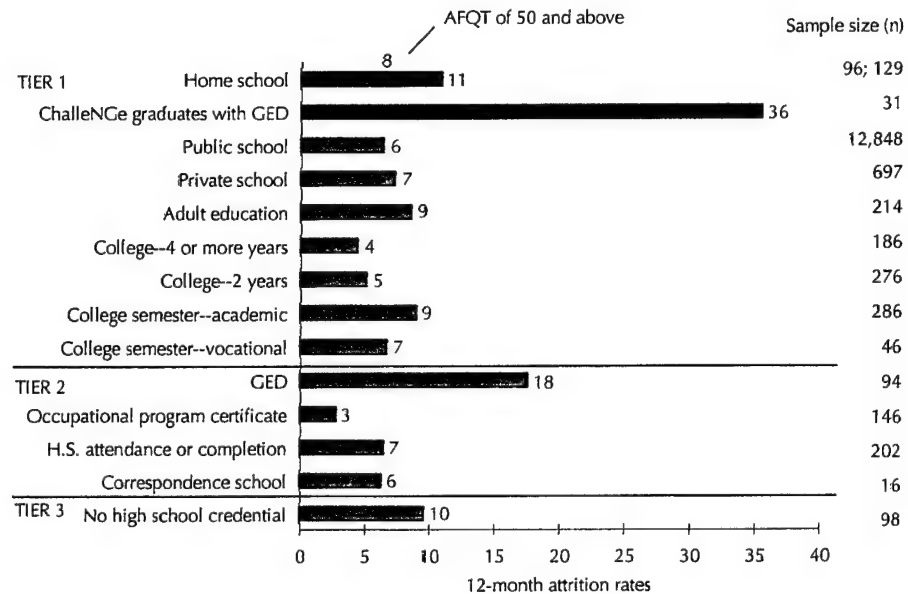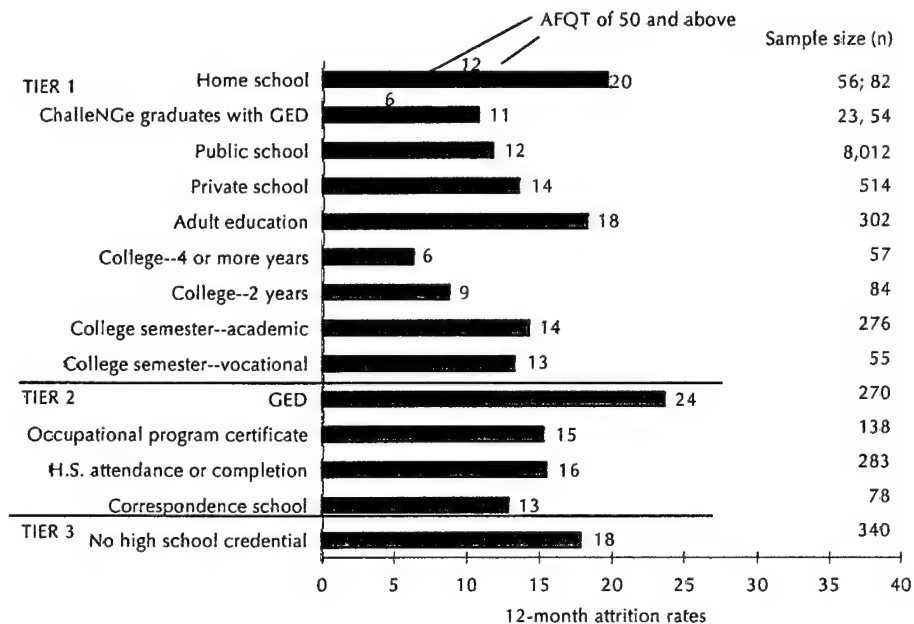
12-month attrition rate (0, 5, 10, 15, 20, 25, 30, 35, 40)

a. Non-prior-service recruits tracked through December 2000.

Figure 7.   Twelve-month attrition rates—Air Force[a]

AFQT of 50 and above

Sample size (n)

TIER 1	Home school	96; 129
	ChalleNGe graduates with GED	31
	Public school	12,848
	Private school	697
	Adult education	214
	College--4 or more years	186
	College--2 years	276
	College semester--academic	286
	College semester--vocational	46
TIER 2	GED	94
	Occupational program certificate	146
	H.S. attendance or completion	202
	Correspondence school	16
TIER 3	No high school credential	98

Values shown: Home school 8 / 11; ChalleNGe graduates with GED 36; Public school 6; Private school 7; Adult education 9; College--4 or more years 4; College--2 years 5; College semester--academic 9; College semester--vocational 7; GED 18; Occupational program certificate 3; H.S. attendance or completion 7; Correspondence school 6; No high school credential 10.

12-month attrition rates (0, 5, 10, 15, 20, 25, 30, 35, 40)

a. Non-prior-service recruits tracked through December 2000. The Air Force attrition rate for ChalleNGe GEDs with AFQT scores of 50 and above is not shown separately because they experienced about the same attrition rate as ChalleNGe GEDs overall.

Figure 8. Twelve-month attrition rates—Marine Corps[a]

		Sample size (n)
TIER 1	Home school — 12 (AFQT of 50 and above), 20	56; 82
	ChalleNGe graduates with GED — 6 (AFQT), 11	23, 54
	Public school — 12	8,012
	Private school — 14	514
	Adult education — 18	302
	College--4 or more years — 6	57
	College--2 years — 9	84
	College semester--academic — 14	276
	College semester--vocational — 13	55
TIER 2	GED — 24	270
	Occupational program certificate — 15	138
	H.S. attendance or completion — 16	283
	Correspondence school — 13	78
TIER 3	No high school credential — 18	340

12-month attrition rates

a. Non-prior-service recruits tracked through December 2000.

Home schoolers

In general, home schoolers have relatively high attrition levels. However, home schoolers with AFQT scores of 50 and above have an attrition level that is comparable to that of HSDGs.

• **Home schoolers with high AFQT scores**

Home school graduates with AFQT scores of 50 and above have an attrition rate of 12 percent in the four Services combined. This is lower than that of private school graduates and only slightly higher than that of public school graduates. Home school graduates with high AFQT scores have the fourth lowest attrition rate among the nine Tier 1 education categories we identify—and 9 percentage points lower than that of GEDs.

In the Navy, the attrition rate of home school graduates with AFQT scores of 50 and above is 19 percent. This attrition rate is the fourth lowest among Tier 1 recruits—and more than 10 percentage points lower than that of GEDs.

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In the Air Force, the attrition rate of home schoolers with AFQT scores of 50 and above is 8 percent. This attrition rate is lower than that of recruits with adult education diplomas and those who qualified for having completed one semester of college (academic). In the Air Force, the attrition rate of home schoolers with high AFQT scores is less than half the rate of GEDs.

In the Marine Corps, the attrition rate of home schoolers with AFQT scores of 50 and above is 12 percent. This attrition rate is about the same as that of public school graduates and lower than that of private school graduates, adult education certificate holders, and recruits with one semester of college (academic or vocational). Marine Corps home schoolers with AFQT scores of 50 and above experience about half the attrition of GEDs.

In the Army, the attrition rate of home school graduates with high AFQT scores is approximately the same as that of other home school graduates.

Home schoolers overall

Home school graduates overall have an attrition rate of 17 percent in the four Services combined, the second highest among Tier 1 recruits and the third highest overall.

In the Army, home schoolers' attrition rate of 10 percent is the third highest among Tier 1 recruits. Only recruits who completed one semester of college (academic or vocational) have higher attrition than home schoolers. In the Navy, home schoolers' attrition rate of 26 percent is also the third highest among Tier 1 categories (after ChalleNGe GED and one semester of vocational college).

In the Air Force, home schoolers' attrition rate of 11 is the second highest among Tier 1 recruits. The rate is the third highest overall (after ChalleNGe GEDs and regular GEDs). In the Marine Corps, home schoolers' attrition rate of 20 is the highest of any Tier 1 group and the second highest overall.

Regression analysis confirms our finding that home schoolers with high AFQT scores have relatively low attrition. Our regression analysis predicts that home schoolers overall will have higher attrition rates than HSDGs. See appendix H for the marginal effects from models of

12-month attrition after controlling for demographics, educational background, military occupation, self-reported measures of drive and physical fitness, and other factors.

ChalleNGe participants

In the Army and Marine Corps, attrition rates for ChalleNGe GEDs are relatively low—the second and third lowest of Tier 1 recruits, respectively. At 8 percent, the ChalleNGe attrition rate in the Army is lower than the rates of all other Tier 1 groups, except those with 4 or more years of college. In the Marine Corps, the 11 percent ChalleNGe attrition rate is lower than for all other Tier 1 groups, except recruits with 2 or more years of college.

ChalleNGe GEDs with AFQT scores of 50 and above do even better in the Army and the Marine Corps. In the Army, their attrition rate is 3 percent—lower than that for any other education group. In the Marine Corps, ChalleNGe GEDs with high AFQT scores have an attrition rate of 6 percent—also the lowest rate of any education group.

In the Navy, the ChalleNGe GEDs have the single highest attrition rate of any group—35 percent. This is more than twice the attrition rate of public school graduates. In the Air Force, ChalleNGe GEDs also have the single highest attrition rate of any group, 36 percent—more than 5 times higher than that of public school graduates and 2 times higher than that of GED holders.

In the Navy and Air Force, we did not find that ChalleNGe GEDs with AFQT scores of 50 or higher have a better relative performance than other ChalleNGe GEDs. In the Navy, the attrition rate of ChalleNGe GEDs with high AFQT scores is 27 percent. This rate is still higher than that for all other Tier 1 groups (except one semester of vocational college) and is only about 3 percentage points lower than that of regular GEDs. In the Air Force, ChalleNGe GEDs with high AFQT scores also experience about the same attrition rate as ChalleNGe GEDs overall.

Why do ChalleNGe recruits do well in the Army and Marine Corps? A possible explanation may lie in the complementarity between the training regimen of the ChalleNGe Program and the infantry cultures of these two Services. The ChalleNGe Program places a strong

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emphasis on the physical training of cadets, which may be particularly useful in the Army and Marine Corps.[13]

Our regression analysis confirms that in the Air Force ChalleNGe GEDs have by far the highest attrition of any education credential group. This is statistically significant at the 99-percent confidence level.

Our regression results also show that even after correcting for AFQT scores and other characteristics likely to affect attrition, ChalleNGe GEDs have higher levels of attrition than HSDGs in the Navy.

Other recruits

HSDGs

Except for those who completed 2 years or more of college, public and private school graduates have the lowest attrition rates of any group— 11 and 13 percent, respectively.

One semester of college

Recruits who qualified for Tier 1 status for completion of one semester of college have a high attrition rate. This finding, consistent across the Services, reflects the fact that these recruits dropped out twice—from high school and college. In all Services combined, the attrition rates for those who completed a semester at an *academic* or a *vocational* college are 15 and 17 percent, respectively.

Adult education

In all Services combined, recipients of adult education diplomas have an attrition rate of 16 percent. In the Marine Corps, this group has the second highest attrition among Tier 1 recruits.

GED

Recruits with GEDs experience very high attrition. In each Service, no more than three other groups of any tier have higher attrition than

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13. The 12-month tracking period covers the ChalleNGe Program post-residential mentorship phase. However, according to [11], only 81 percent of graduates are matched to a mentor, and only 39 percent of these remain in a mentor relationship for a year. Also, some ChalleNGe graduates enlist in the military well after 1 year of graduation from the program.

GEDs. In fact, in each Service, GEDs have higher attrition than recruits with no high school credentials. This may be partly the result of the thorough screening of high school dropouts.

Why do recruits attrite?

Home schoolers

As discussed earlier, home school graduates overall have a 12-month attrition rate of 17 percent, but for home school graduates with AFQT scores of 50, the attrition rate is 12 percent. In comparison, HSDGs (from public and private schools) experience an attrition rate of 11 percent.

Why do home schoolers leave prematurely? Home schoolers overall leave in significantly greater proportions than HSDGs for misconduct, failure to adapt, and defective enlistment (see figure 9). Home school graduates with AFQT scores of 50 and above, on the other hand, are slightly less likely than HSDGs to leave early for misconduct and failure to adapt. Home schoolers with high AFQT scores still have a higher attrition rate than HSDGs for defective enlistment.

Figure 9.   Reasons for early separation (the four Services combined)[a]
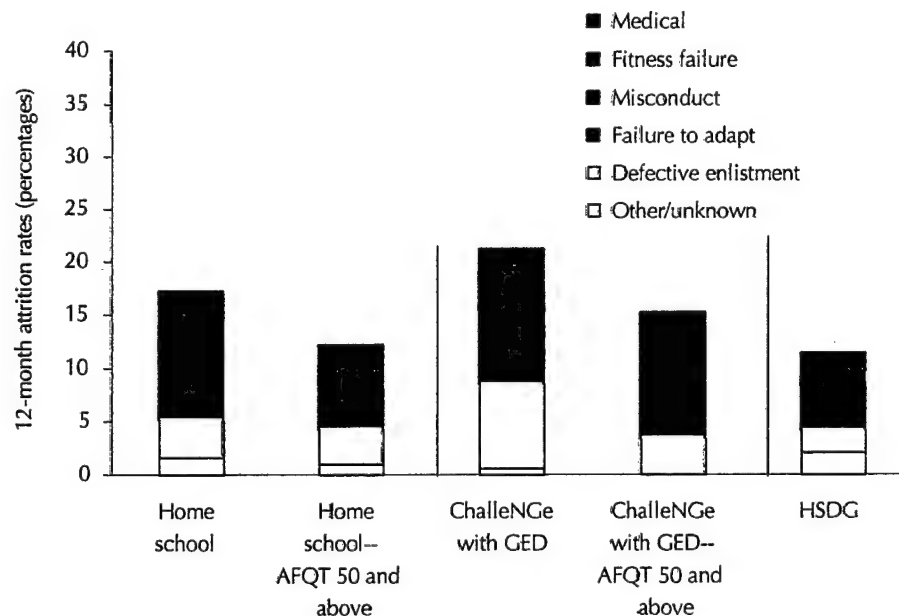
a. Twelve-month attrition rate.

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Why do ChalleNGe GEDs separate early from the military? Compared to HSDGs, ChalleNGe GEDs overall and those with high AFQT scores are more likely to leave because of misconduct and failure to adapt. They are also more likely to leave early because of defective enlistments. These are DOD-wide averages and, as we discussed earlier, mask the fact that ChalleNGe recruits do particularly well in the Army and Marine Corps.

Other factors

Our regression analysis shows that, other than the education credential, some of the factors with the largest impact on attrition are the following:

- *Possession of an enlistment waiver.* Recruits who received an enlistment waiver were more likely to attrite in the Navy and the Marine Corps (3 and 1 percentage points, respectively). There were no significant differences in attrition levels between those with and without waivers in the Army and the Air Force. The most common reasons for waivers are medical or physical disqualifications (such as height and weight), legal violations (including minor traffic offenses and misdemeanors), and Delayed Entry Program (DEP) discharges.

- *AFQT scores.* Our regression analysis indicates that recruits with low AFQT scores are more likely to attrite than those with high scores. In the Marine Corps, for example, a recruit with an AFQT score of 70 is almost 3 percentage points less likely to attrite during the first 12 months of service than a similar recruit with an AFQT score of 40.

- *Regular smoking.* Recruits who reported in the survey that they smoked regularly (at least 4 times a week) during the last 6 months before entering the DEP were significantly more likely to attrite from each Service than recruits who reported not smoking at all or smoking lightly. The effect of smoking is significant. For example, regular smokers in the Navy are predicted to have an attrition rate that is 8 percentage points higher than that of non-smokers and 5 percentage points higher than that of light smokers. Our regression controlled

for education credential, AFQT score, age, gender, and an indicator of accession waiver, among other things.[14]

Enlistment tiers and attrition

An important finding of our analysis is that the educational credential tiers do not consistently reflect the attrition patterns of recruits. Specifically, the attrition rate of non-GED Tier 2 recruits is not significantly higher than that of Tier 1 recruits. Adult education diploma holders and recruits with one semester of college (academic or vocational) have higher attrition than those holding a certificate from a correspondence school in each Service. At least one of these groups, adult education and one semester of college, has higher attrition than recruits with a certificate from an occupational program and for high school attendance.[15]

We realize that Tier 2 and 3 recruits are subject to higher enlistment standards than Tier 1 recruits. This likely accounts for at least a portion of the difference in attrition rates for groups in different tiers. Nevertheless, the results of our regression analysis (controlling for AFQT scores and other factors) support the finding that the attrition of non-GED Tier 2 recruits is no higher than that of Tier 1 recruits.
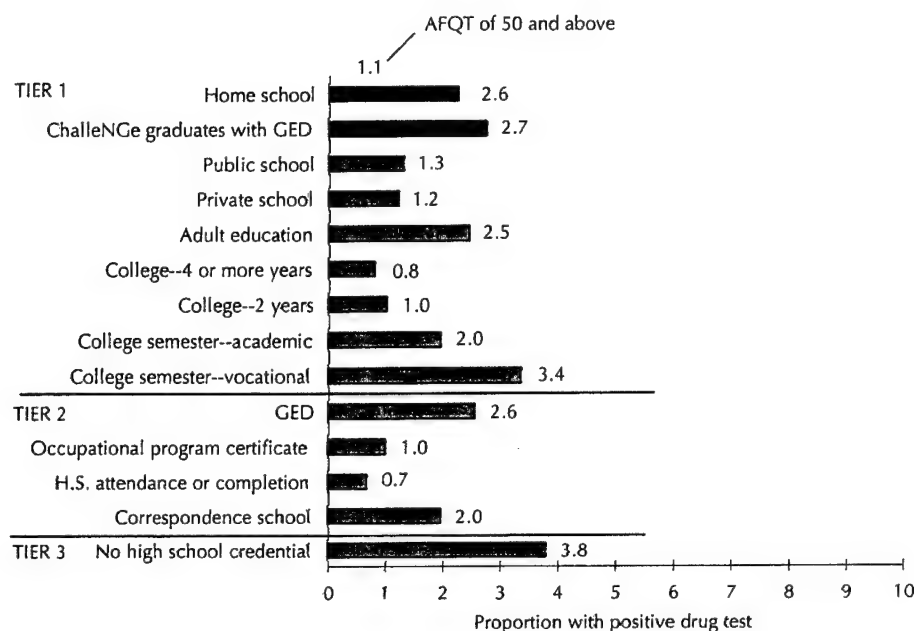
Other performance indicators

Positive drug tests

Using data from DMDC, we found that both home school and ChalleNGe recruits have relatively high rates of pre-service positive drug tests (see figure 10). However, home school graduates with AFQT scores of 50 and above have relatively low rates of positive drug tests.

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14. Pre-service regular drinking also increased attrition in most Services, but the magnitude of the effect was significantly smaller than for regular smoking.

15. These results are consistent with those in [10], which documented that recruits with adult education diplomas and those with one semester of college (with no high school diploma) experience significantly higher attrition than high school graduates. That report explains that political pressures have prevented the move of adult education to Tier 2.

Figure 10. Proportion of recruits with positive pre-service drug tests (the four Services combined)[a]

AFQT of 50 and above

TIER 1	Home school	1.1 / 2.6
	ChalleNGe graduates with GED	2.7
	Public school	1.3
	Private school	1.2
	Adult education	2.5
	College--4 or more years	0.8
	College--2 years	1.0
	College semester--academic	2.0
	College semester--vocational	3.4
TIER 2	GED	2.6
	Occupational program certificate	1.0
	H.S. attendance or completion	0.7
	Correspondence school	2.0
TIER 3	No high school credential	3.8

Proportion with positive drug test (0–10)

a. For the 12-month period ending in February 2000. The rate of positive drug tests for ChalleNGe GEDs with AFQT scores of 50 and above is not shown separately because they experienced about the same rate as ChalleNGe GEDs overall.

Home schoolers

According to our findings, 2.6 percent of home school graduates have positive drug tests. This rate is twice as high as that of public and private school graduates.

For home school graduates with high AFQT scores, the rate of positive drug tests is 1.1 percent—lower than that of all Tier 1 groups (except those with 2 or more years of college).

ChalleNGe participants

The rate of positive drug tests among ChalleNGe recruits is the third highest among all recruits: 2.7 percent. ChalleNGe GEDs who scored 50 or more on the AFQT have about the same positive drug test rate as those who scored lower.

AFQT scores

Home schoolers

The average AFQT score of home school graduates is identical to that of public school graduates (59). Research has found that home schoolers do better than public school graduates on a variety of achievement tests [5, 8]. This means that home schoolers who enter the military tend to have below-average academic skills, compared to the typical home schooler.

ChalleNGe participants

ChalleNGe GEDs have the lowest average AFQT score or any education group (50). About 60 percent of ChalleNGe GEDs scored below 50 on the AFQT and, therefore, would not have been admitted without this pilot program.

Other recruits

Recruits who completed 4 years or more of college have the highest average AFQT score of any education group, 77. For recruits who completed 2 years of college, the average is 66. Private school graduates have an average AFQT score of 64—almost 5 points higher than that of public school graduates.

Interest in military service

Are home school and ChalleNGe Program youth interested in military service? The results of our special collection of the YATS suggest that interest differs sharply between these two groups.

Home school youth

The enlistment propensity of home schoolers is low for every Service (see figure 11). Home schoolers' propensity to enlist in the Army and the Navy is less than half that of the general youth population. Home schoolers' enlistment propensity for the Air Force and the Marine Corps is a little higher, but it is still at least 18 percent lower than that of the general youth population.[16]

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16. The low enlistment propensity among home schoolers holds true for men and women and for specific age groups separately. Home schoolers' propensity is also lower for National Guard/Reserve service.

Figure 11. Home schoolers' propensity to enlist[a]
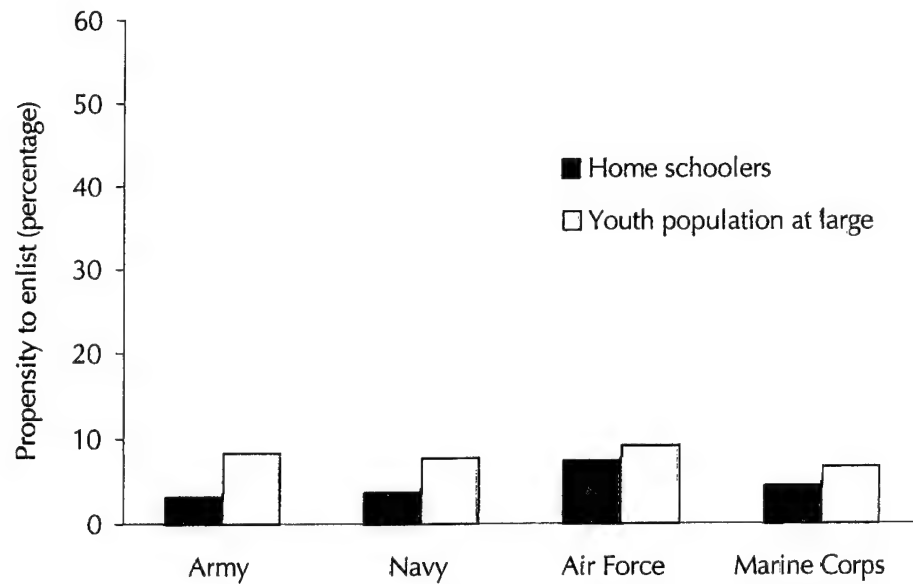
a. Men and women.

Why are so few home schoolers interested in military service? Our YATS survey indicates that home schoolers are *twice* as likely to take a college entrance exam as the general youth population. In addition, home schoolers are 11 percentage points less likely to have parents who support their children enlisting in the military. As we saw before, home schoolers are more likely to pursue their post-secondary studies than regular high school graduates and GEDs.

Another possible explanation for their low enlistment propensity is that many home schoolers complete their schooling at an accelerated rate—and graduate from high school at 16 or younger. It is possible that these home school graduates may pursue other activities, such as college and employment, because they are not old enough for military enlistment. However, it is unlikely that many of these home schoolers develop an interest in the military several years later.

Finally, lack of exposure to the possibility of military service may explain their low interest. As we show below, JROTC has not been readily available to most home schoolers.

ChalleNGe youth

In contrast to home schoolers, ChalleNGe youth have a very high enlistment propensity (see figure 12).

Figure 12. ChalleNGe youth propensity to enlist[a]
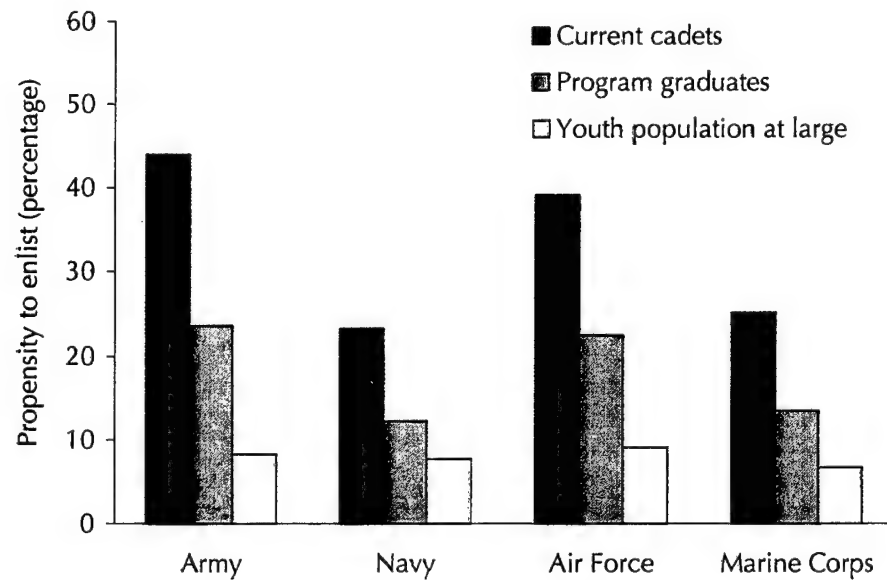
a. Men and women.

Cadets

ChalleNGe cadets express an extremely high propensity to enlist for all four Services. About 25 percent express interest in joining the Navy and the Marine Corps. Interest in the Army and Air Force is even higher—44 and 39 percent, respectively.

Program graduates

Interest in military service may cool off somewhat after graduation from the ChalleNGe Program—graduates are about half as likely to express interest in military service as current cadets. This difference is partly because our survey excluded youth who had already signed up for the military.

Nonetheless, the overall propensity of ChalleNGe Program graduates to enlist in the military is about twice that of the general youth population.[17] This is consistent with the finding that 29 percent of ChalleNGe graduates enlist in the military [7], compared to 3 percent of high school graduates and GED recipients [6]. Propensity to enlist among program graduates also is higher for the Army and the Air Force.

Effective ways to reach home schoolers

We found that home schoolers with high AFQT scores have relatively low attrition. Where can military recruiters find home school prospects? In our survey of associations, we asked home school leaders about effective ways for military recruiters to reach home school youth. As figure 13 shows, 77 percent of home school association leaders listed an exhibit table at association events, such as conferences, book fairs, and support group meetings.

Figure 13. Effective ways to reach home schoolers

Percentage of respondents selecting option

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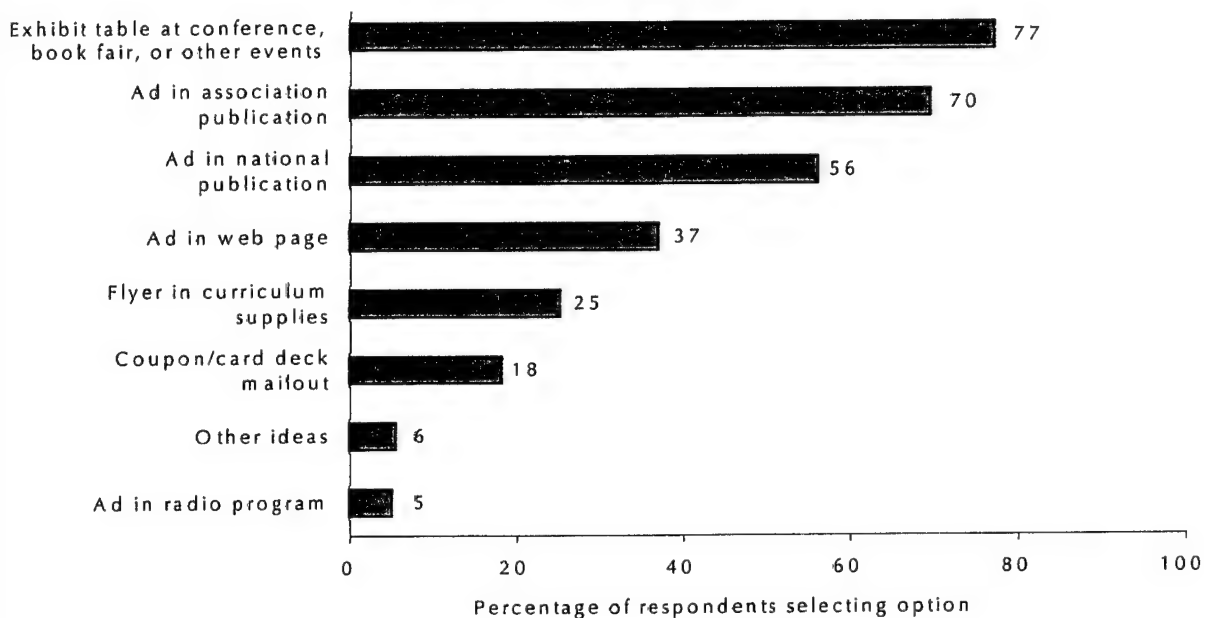
17. The high enlistment propensity of ChalleNGe participants holds true for men and women and for specific age groups separately. ChalleNGe participants' enlistment propensity is also generally higher for National Guard/Reserve service.

Eighty percent of associations that hold events said they would welcome military recruiters. The average attendance at these events is 800 families. Youth of all ages attend association events. The average cost per exhibit table is only $70.

The second way for reaching home schoolers most frequently cited by the association leaders is placing an ad in a state or local association publication. Seventy-five percent of the respondents said their publications would welcome ads from military recruiters. The average distribution of these publications is 1,100 copies, and they charge an average of $90 per ad.

JROTC

From our special collection of the YATS, we found that making JROTC more available to home schoolers would boost their interest in military service. Home schoolers have a high interest in participating in JROTC (see figure 14).

Figure 14. Home schoolers' interest in the JROTC
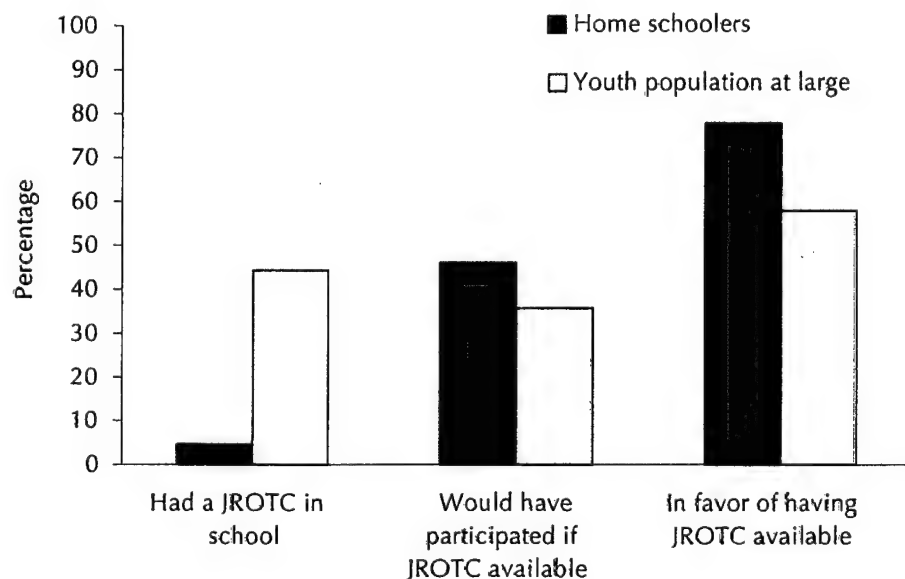
A small minority of home schoolers had access to a JROTC program (5 percent, compared to 44 percent of the general youth population). Many home school youth indicated that they would have participated if JROTC had been available to them (46 percent, compared to 36 percent for the general youth population).

Finally, a large majority of home school youth indicated that they would favor having JROTC available (78 percent, compared to 58 percent of the general youth population).

Identifying home school credentials

Like colleges, the military faces the challenge of identifying genuine credentials for completion of secondary studies at home. This is an important challenge because there is evidence that some high school dropouts claiming to be home school graduates enlisted in the Navy in the first several months of the pilot program. The Navy soon tightened its guidelines for identifying home schoolers.

When asked about practical ways to identify home school graduates, 67 percent of respondents to our survey of associations cited documentation from an umbrella school (a home school as an extension of a private school). The second-most-cited practical source of documentation was a notarized letter from the parents (63 percent). In addition, many respondents identified documentation from a correspondence program and a portfolio of the high school work (60 percent of respondents each).

Other ways of identifying genuine home school credentials cited by the association leaders included documentation from a local support group and a written narrative describing the curriculum. They also cited a notarized letter from a third party, such as an association representative or the clergy, and documentation from a state association or a curriculum provider. Documentation from the state department of education or the local school board was the source least frequently recommended by the home school leaders.

Relatively few home school associations certify high school completion. According to our data, only 1 in 3 associations issues high school diplomas. Furthermore, some families in these associations choose not to be certified.

In our home school association survey, we asked for specific types of recruits that the recruiters should avoid or consider on a case-by-case basis. About 80 percent of the respondents indicated applicants who were expelled or dropped out and later were home schooled for less than 1 year.

Enlistment incentives for ChalleNGe youth

From our special collection of YATS, we found that education and work skills are the most important reasons for ChalleNGe youth to consider joining the military (see table 2). "Money for education" was cited by 44 and 40 percent of cadets and program graduates, respectively (compared to 37 percent of the general youth population). Also, "work skills" was cited by 31 and 36 percent of cadets and program graduates (compared to 19 percent of the general youth population).

Table 2.   Most important reasons for ChalleNGe youth to join the military

	Percentage of respondents selecting option		
	Current cadets	Program graduates	Youth population at large
Money for education	44	40	37
Develop work skills	31	36	19
Travel	13	11	15
Pay/money	12	10	15

Other reasons cited by ChalleNGe youth to consider joining the military were "travel" and "pay." Current cadets and program graduates cited these slightly less frequently than the general youth population.

Identification of ChalleNGe graduates with GEDs is straightforward. For validation of their credential, these recruits simply have to present a certificate of graduation from the program and a GED certificate.

In our YATS analysis, we found that recruiters of all Services actively seek ChalleNGe Program participants. DOD-wide, 81 percent of cadets and 96 percent of program graduates have talked to a recruiter (compared to only 44 percent of the general youth population).

Recommendations

Based on the evidence uncovered by our research findings, we make the following recommendations:

- **DOD should consider placing home school graduates with AFQT scores of 50 and above in Tier 1, and the rest in Tier 2.** Home schoolers with AFQT scores lower than 50, though, have high attrition. DOD should consider placing these home schoolers in Tier 2. This recommendation is based on our 1-year tracking of the recruits and, therefore, should be validated as the pilot program matures, enabling the tracking of recruits for a longer period. Differentiating the tier placement of home schoolers by AFQT scores is consistent with college policies that rely heavily on test scores for making admissions and scholarship decisions for home schoolers.

- **Encourage JROTC units to reach out to home schoolers.** The Services should encourage JROTC units to reach out to and accept qualified home schoolers. The Services should consider accepting applications from home school associations for JROTC charters.

- **The Army and Marine Corps should consider petitioning DOD to place ChalleNGe recruits in Tier 1. The Navy and Air Force should consider placing them in Tier 2.** ChalleNGe graduates with GEDs have low attrition in the Army and Marine Corps, so these Services should seek to place them in Tier 1. In the Navy and Air Force, though, these recruits have high attrition; these Services should place them in Tier 2.

- **DOD should consider consolidating the oversight of education credentials to education specialists reporting directly to DOD.** Because systematic coding inaccuracies may have detrimental consequences for recruit quality and attrition, DOD should

improve the recording and validation of education credentials. DOD should consider consolidating the oversight of education credentials to education specialists directly under DOD, rather than the individual Services. This would promote more uniform standards and consistency. Education specialists working for DOD would be more independent and in a better position to minimize misclassifications.

- **Conduct an inspection to determine the reasons for credential misclassification.** It would be beneficial to determine the exact reasons for the misclassification of recruits' education credentials in the electronic personnel files. This can be done by comparing a sample of service (paper) records to the electronic records. It would also be beneficial to interview recruits and recruiters associated with the discrepancies.

- **Require home school applicants to submit appropriate documentation.** Based on the findings from our Survey of Home School Associations, we recommend that home school applicants be required to present all the documents listed under *one* of the following sources of home school credentials. This list recognizes that home schoolers receive credentials from a variety of institutions—private and public—and is aimed at preventing non-high-school graduates from presenting themselves as home school graduates.

  1. *Home school program.* Includes such entities as an umbrella school, a correspondence program, a private school, a home school service center, or a curriculum provider

     - Diploma or graduation letter from the program

     - Transcript from the program

     - Notarized letter from parents certifying that they were the primary supervisors of the home school instruction

  2. *Home school association.* Includes state associations and local support groups

     - Diploma or graduation letter from an association

     - Transcript from a home school association or program

- Notarized letter from parents certifying that they were the primary supervisors of the home school instruction

3. *State department of education (SDE) or local school district (LSD)*

   - Diploma from SDE or LSD

   - Transcript from SDE or LSD or a program

   - Notarized letter from parents certifying that they were the primary supervisors of the home school instruction

4. *Independent home school.* Home school families who operate independently and do not fall into the categories above

   - Notarized diploma or graduation letter from parents

   - Notarized transcript from parents

   - Notarized letter from parents certifying that they were the primary supervisors of the home school instruction

   - At least one of the following:

     * A notarized letter by a third party (such as a director of an umbrella school or a support group) confirming completion of high school through home schooling

     * A written narrative describing the curriculum

     * Proof of membership in a home school association (national, state, or local)

For applicants who fall into any of the following categories, we recommend a case-by-case review:

- Partially met requirements of categories 1–4

- Home schooled for 1 year or less

- Home schooled only at the age of 20 or above

- Completed 3 or more grade levels in one academic year.

Appendix A: Home schooling in state laws

This appendix summarizes the options and requirements for home schooling under the laws of each state. This summary is based on data collected by the Home School Legal Defense Association as of March 2000.

Table 3 shows the options to establish a home school in each state. These options are those specifically mentioned in the state laws. The states for which it is the only option are marked with an "XX." The states for which it is one of several legal options available to home schoolers are marked with an "X."

Table 4 shows the requirements for home schooling in each state. The states in which all home schoolers must satisfy the requirement are marked with an "XX." The states in which the requirements are associated with one of several options for home schooling are marked with an "X."

Table 3. Options to establish a home school under state laws[a]

State	Independent home school	Private school	School board approval	Extension of a private school (umbrella school)	Use of a tutor	Religious school	Sponsored by association	Correspondence program	Independent study program
AK	X	X	X	X	X	X		X	
AL					X	X			
AR	XX								
AZ	XX								
CA		X		X	X				X
CO	X	X			X				
CT	XX								
DE			X				X		
FL	X			X					
GA	XX								
HI	X		X						
IA	X				X				
ID	XX								
IL		XX							
IN		XX							
KS		X		X		X			
KY		XX							
LA		X	X						
MA			XX						
MD	X			X				X	
ME		X	X						
MI	X	X							
MN	XX								
MO	XX								
MS	XX								
MT	XX								

Table 3. Options to establish a home school under state laws[a]

State	Independent home school	Private school	School board approval	Extension of a private school (umbrella school)	Use of a tutor	Religious school	Sponsored by association	Correspondence program	Independent study program
NC	XX								
ND	X	X							
NE	XX	XX							
NH	XX								
NJ	XX								
NM	XX								
NV		XX							
NY	XX								
OH	XX								
OK	XX								
OR	XX								
PA	X			X	X				
RI			XX						
SC			X				X		
SD	XX								
TN	X			X		X			
TX		XX							
UT		X	X						
VA	X				X	X			
VT	XX								
WA	X			X					
WI	XX								
WV	X		X						
WY	XX								

a. As of March 2000.

Table 4. Requirements for home schooling under state laws[a]

State	Specific courses	Notify authorities	Minimum attendance	Testing	Record keeping	Teacher qualifications
AK	X	X	X	X	X	X
AL	XX	XX	X		XX	X
AR		XX		XX		
AZ	XX	XX				
CA	XX	X	X	X	X	X
CO	XX	X	X	X	X	X
CT	XX		XX		XX	
DE	XX	XX	XX	X		
FL		X		X	X	
GA	XX	XX	XX	XX	XX	XX
HI	XX	X	X	XX	X	X
IA		XX	XX	X		X
ID	XX		XX			
IL	XX		XX			
IN			XX		XX	
KS	X	X	XX	X	X	XX
KY	XX	XX	XX		XX	
LA	XX	XX	XX	X	X	
MA	XX	XX		XX		
MD	XX	XX	XX	X	XX	
ME	X	X	XX	X		
MI	XX	X			X	X
MN	XX	XX		XX	XX	
MO	XX		XX		XX	
MS		XX	XX			
MT	XX	XX	XX		XX	
NC		XX	XX	XX	XX	XX
ND	XX	XX	XX	X	X	XX
NE	XX	XX	XX			
NH	XX	XX		XX	XX	
NJ	XX					
NM	XX	XX	XX	XX	XX	XX
NV	XX	XX	XX			
NY	XX	XX	XX	XX	XX	XX
OH	XX	XX	XX	XX		XX
OK	XX					
OR	XX			XX		
PA	XX	XX	XX	X	X	X

Table 4.   Requirements for home schooling under state laws[a]

State	Specific courses	Notify authorities	Minimum attendance	Testing	Record keeping	Teacher qualifications
RI	XX	XX	XX	XX	XX	
SC	XX		XX	X	X	XX
SD	XX	XX	XX	XX		
TN	X	X	XX	XX	X	X
TX	XX					
UT	X	X	X			
VA	XX	XX	X	X		X
VT	XX	XX	XX	XX		
WA	X	X	XX	X	X	XX
WI	XX	XX	XX			
WV	XX	XX	X	XX	X	XX
WY	XX	XX	XX			

a. As of March 2000.

Appendix B: Survey of recruits

This appendix consists of a copy of our Survey of Recruits' Education and Background instrument. We administered this survey to more than 67,000 recruits who enlisted during the 12-month period ending in February 2000.

CNA   Survey of Recruits' Education and Backgound

This survey asks about your education and other socioeconomic information of importance to policymakers. Your answers make a difference. They may affect procedures, policies, and distribution of resources. So, filling out this survey is very important. It should take up to 10 minutes to finish. We will keep your answers **confidential**–they will **NOT be part of your records or affect your military career.**

PRIVACY ACT STATEMENT

AUTHORITY: 10 USC 136, 1782, and 2358. PRINCIPAL PURPOSE: Information obtained in this survey will be used to analyze the education and characteristics of recruits, and to support personnel research. This information may be used for making personnel policies. DISCLOSURE: Voluntary. Failure to answer will not result in penalty to the recruit. However, maximum participation is encouraged so that the data will be complete and representative. Your answers will be kept confidential. All information will be used only for research. Only group statistics will be reported. ROUTINE USES: None.

1. LAST NAME

CP99-0231 (C3.F3)

MARKING INSTRUCTIONS

USE NO. 2 PENCIL ONLY

- Use a soft (No. 2), black lead pencil.
- Make dark, heavy marks that fill the circle.
- Erase completely any answer you wish to change.
- Do not fold, staple, or mutilate this form.

CORRECT MARK   **INCORRECT MARKS**

2.

MONTH	BIRTHDATE	
	DAY	YR.
JAN ○		
FEB ○		
MAR ○		
APR ○		
MAY ○		
JUN ○		
JUL ○		
AUG ○		
SEP ○		
OCT ○		
NOV ○		
DEC ○		

3. SOCIAL SECURITY NUMBER

4. Fill in the circles for each grade you finished. It's OK to choose more than one type of school. Fill a circle for EACH grade you finished.

	PUBLIC school	PRIVATE school	Classes mostly at HOME	GED equivalency
Grade 1	○	○	○	○
Grade 2	○	○	○	○
Grade 3	○	○	○	○
Grade 4	○	○	○	○
Grade 5	○	○	○	○
Grade 6	○	○	○	○
Grade 7	○	○	○	○
Grade 8	○	○	○	○
Grade 9	○	○	○	○
Grade 10	○	○	○	○
Grade 11	○	○	○	○
Grade 12	○	○	○	○

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IMPORTANT: Before you continue, go back to question 4 and make sure you filled a circle for EACH GRADE you finished.

5. **Did you finish high school?**
   ○ No ○ Yes. If yes, choose the credential(s) you earned when you finished high school. **Fill in at least one circle:**
      ○ Diploma -- earned from a public or private **traditional day school**
      ○ Diploma -- earned from an **adult (continuation)** school
      ○ Diploma -- issued by parents or tutors for **home schooling**
      ○ Diploma -- issued by an association, school, or state for **home schooling**
      ○ Diploma -- issued by a **vocational or technical** school
      ○ Diploma -- issued by a **correspondence** school
      ○ GED **equivalency** diploma
      ○ Certificate -- for high school **attendance or completion**

6. **Did you finish one semester/quarter of college (at least 4 courses)? Do not include advanced placement courses you took in high school.**
   ○ No ○ Yes. If yes, fill in your highest level:
      ○ One or more semesters/quarters of college
      ○ One or more semesters/quarters of vocational college
      ○ An associate degree
      ○ A bachelor's or higher degree

7. **Did you participate in the National Guard ChalleNGe program?**
   ○ No ○ Yes. If yes, did you graduate from ChalleNGe?
      ○ No   ○ Yes

8. **Were you ever expelled from high school or junior high (intermediate school)?**
   ○ No ○ Yes

9. **Were you ever suspended from high school or junior high (intermediate school)?**
   ○ No ○ Yes

10. **If you ever thought about quitting high school, show why. MARK ALL THAT APPLY.**
   ○ I never thought about quitting high school
   ○ My family needed money or needed me at home
   ○ I was expelled or suspended
   ○ I was bored, wasn't learning anything useful
   ○ I got married or became a parent
   ○ I was getting bad grades
   ○ I didn't get along with the other students
   ○ The rules were too strict
   ○ I wasn't going to graduate on time
   ○ I didn't get along with the teachers, counselors, or the principal
   ○ I wanted to work full time
   ○ Other reasons

11. **During high school, did you participate in any of the following activities? MARK ONE RESPONSE FOR EACH ACTIVITY.**

	Did Not Participate	Participated	Participated as a Leader or Officer
Athletic teams	○	○	○
Drama, music, art, chorus	○	○	○
School clubs	○	○	○
Other clubs (Scouts, Y, 4-H, etc.)	○	○	○

12. **During your high school years, what size city or area did you live in?**
   ○ Large city (over 300,000 people)
   ○ Suburb of a large city
   ○ Medium sized city (50,000-300,000)
   ○ Small city or town (under 50,000)
   ○ Rural area

13. Are you planning to go to college?

- ○ Yes, while on active duty during this enlistment
- ○ Yes, after I complete this term of active duty
- ○ No
- ○ Undecided

14. Listed below are some reasons why people join the military. How important was each of these reasons in your decisions to join the military?

	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
a. Military advertising	○	○	○	○	○
b. Military recruiter	○	○	○	○	○
c. Desire to serve my country	○	○	○	○	○
d. Develop self-discipline	○	○	○	○	○
e. Earn more money than previous job(s)	○	○	○	○	○
f. Educational benefits	○	○	○	○	○
g. Family social support services	○	○	○	○	○
h. Get away from a personal problem	○	○	○	○	○
i. Influence of family	○	○	○	○	○
j. Influence of friends	○	○	○	○	○
k. Lack of civilian job opportunities	○	○	○	○	○
l. Medical care, coverage and benefits	○	○	○	○	○
m. Military tradition in family	○	○	○	○	○
n. Need to be on my own	○	○	○	○	○
o. Pay and allowances	○	○	○	○	○
p. Security and stability of a job	○	○	○	○	○
q. Training in job skills	○	○	○	○	○
r. Chance to travel	○	○	○	○	○
s. Repayment of loans	○	○	○	○	○
t. Prove that I could do it	○	○	○	○	○
u. Make military a career	○	○	○	○	○
v. Become more mature	○	○	○	○	○
w. Take time out to decide about my life plans	○	○	○	○	○
x. Gain job experience	○	○	○	○	○
y. Escape from a bad neighborhood	○	○	○	○	○
z. Needed a place to live	○	○	○	○	○
aa. Chance for adventure	○	○	○	○	○

15. Which of the following strongly influenced you to join the military? MARK ALL THAT APPLY.

- ○ Parent(s)/Guardian(s)
- ○ Brother/Sister
- ○ Friends(s)
- ○ Wife/Husband/Girlfriend/Boyfriend
- ○ Athletic Coach
- ○ Teacher
- ○ School Guidance Counselor
- ○ ROTC student
- ○ ROTC cadre member
- ○ Service member
- ○ Recruiter
- ○ Radio advertisement
- ○ Television advertisement
- ○ Printed advertisement

16. How important is each of the following TO YOU PERSONALLY?

	Not at all Important	Slightly Important	Somewhat Important	Moderately Important	Quite Important	Very Important	Extremely Important
a. Loyalty to the United States Armed Services	○	○	○	○	○	○	○
b. Taking responsibility for your actions and decisions	○	○	○	○	○	○	○
c. Putting what is good for others above your own welfare	○	○	○	○	○	○	○
d. Dedication to serving the United States, even to risking your life in its defense	○	○	○	○	○	○	○
e. Commitment to working as a member of a team	○	○	○	○	○	○	○
f. Dedication to learning your job and doing it well	○	○	○	○	○	○	○
g. Personal drive to succeed in your work and advance	○	○	○	○	○	○	○
h. Being honest, open, and truthful	○	○	○	○	○	○	○
i. Being courageous	○	○	○	○	○	○	○
j. Standing up for what you firmly believe is right	○	○	○	○	○	○	○
k. Working with others tactfully	○	○	○	○	○	○	○
l. Exhibiting excellent appearance	○	○	○	○	○	○	○
m. High moral standards	○	○	○	○	○	○	○
n. Building and maintaining physical fitness and stamina	○	○	○	○	○	○	○

17. When you were growing up, did you have a parent/guardian who was career active duty military?
○ Yes　　○ No

18. During the last 6 months before entering the Delayed Entry Program (DEP), how often did you smoke cigarettes?
○ Never
○ Rarely
○ Once a week or so
○ 2-3 times a week
○ 4-5 times a week
○ Daily

19. During the last 6 months before entering the Delayed Entry Program (DEP), how often did you drink alcoholic beverages?
○ Never
○ Rarely
○ Once a week or so
○ 2-3 times a week
○ 4-5 times a week
○ Daily

Appendix C: Categorizing education credentials

We relied on our Survey of Recruits' Education and Background to identify education credentials earned for completion of secondary studies. To identify these education credentials, we used the following data algorithm. The credentials are in order of priority, that is, we assigned the credential that appears first in the algorithm to recruits who earned two or more credentials. For example, we categorized a home school graduate who also obtained a GED as a home school graduate.

Tier 1

Home school graduate

Basic component

- Completed grade 12 at home and

  — Earned a home school diploma from parents or tutors

  — Was not expelled from high school or junior high

- Completed grade 12 at home and

  — Earned a diploma from parents, tutors, or state for home schooling

  — Was not expelled from high school or junior high

- Completed grade 12 in a private school and

  — Earned a home school diploma from parents or tutors

  — Was not expelled from high school or junior high

- Completed grade 12 in a private school and

- — Earned a diploma from parents, tutors, or state for home schooling

- — Was not expelled from high school or junior high

- Completed at least two of grades 9, 10, and 11 at home and

  - — Earned a home school diploma from parents or tutors

  - — Was not expelled from high school or junior high

- Completed at least two of grades 9, 10, and 11 at home and

  - — Earned a diploma from parents, tutors, or state for home schooling

  - — Was not expelled from high school or junior high

- Exclude recruits who home schooled for 1 year or less:

  - — Completed grade 12 at home and

  - — Did not complete grade 9, 10, or 11 at home and

  - — Completed grades 9, 10, and 11 at a public school or through a GED program (or a combination of the two).

Home schooled through a private school

- Completed grade 12 in a private school and

  - — Completed at least two of grades 9, 10, and 11 at home

  - — Earned a regular high school diploma

  - — Was not expelled from high school or junior high.

Home schooled and obtained a GED

- Completed grade 12 at home and

  - — Completed grade 9, 10, or 11 at home

  - — Did not complete grades 9, 10, or 11 at a public school or a GED program

  - — Earned a GED diploma

  - — Was not expelled from high school or junior high.

Home schooled and obtained a correspondence school diploma

- Completed grade 12 at home and

  — Completed grade 9, 10, or 11 at home

  — Did not complete grades 9, 10, or 11 at a public school or a GED program

  — Earned a diploma from a correspondence school

  — Was not expelled from high school or junior high.

ChalleNGe graduate with a GED

- Graduated from the ChalleNGe Program and earned a GED

- Graduated from the ChalleNGe Program and earned an adult education diploma.[15]

One semester of college—academic

- Did not earn a regular high school diploma and completed one or more semesters/quarters of academic college.

One semester of college—vocational

- Did not earn a regular high school diploma and completed one or more semesters/quarters or vocational college.

Private school graduate

- Completed grade 12 in a private school and earned a regular high school diploma.

- Exclude: In addition to having completed grade 12 in a private school, completed grade 12 in a public school.

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15. This takes into account that some states (such as Georgia) grant adult education diplomas—not GEDs—to ChalleNGe Program participants passing the required test.

Public school graduate

- Completed grade 12 in a public school and earned a regular high school diploma

- Completed grade 12 at home and

  — Earned a regular high school diploma

  — Did not complete grades 9, 10, or 11 at a home school

- Home schooled for 1 year or less and earned a regular high school diploma.

Adult education

- Earned an adult education diploma.

Tier 2

GED

- Earned a GED

- Home schooled for 1 year or less and earned a GED.

Occupational program certificate

- Earned a diploma from a vocational or technical school.

High school certificate of attendance

- Earned a certificate for high school attendance or completion.

Correspondence school diploma

- Earned a diploma from a correspondence school.

Tier 3

No high school credential

- Did not earn a diploma or credential from any of the sources cited above: public or private school; adult education; parents or tutors for home schooling; association, school, or state for home schooling; vocational or technical school; correspondence school; and GED program.

Other education categories

We also created two variables for completion of two years or college or four years of college or more. Recruits who completed two years of college or more would qualify for Tier 1 for other credentials, such as a regular high school diploma or one semester of college.

Four years of college or more

- Completed four or more years of college.

Two years of college

- Completed two years of college.

Appendix D: Weighting the sample to reflect the population

In our Survey of Home School Associations and our special collection of the Youth Attitude Tracking Study (YATS), we collected data to represent home school youth in general. There are distinct segments in the home school population related to religious orientation and institutional affiliation.

Because the average values of attributes of the home school population may vary among its different segments, it is important that the overall average be representative of the entire home school population. To do this, we weighted the sample to reflect the entire population.

We now show the method we used to weight the sample we collected through our special YATS. The method we used to weight the sample in the Survey of Home School Associations is similar. Let the value of a particular attribute, such as propensity to enlist in the military, be Y_i. Assume its value depends on two different categorical variables, denoted as X_{1i} and X_{2i}, where:

$(X_{1i} = 1)$ if youth is a member of a home school association

$= 0$ otherwise.

$(X_{2i} = 1)$ if youth is evangelical Christian.

$= 0$ otherwise.

Note that all individuals fall into one of four unique categories:

$(X_{1i} = 1$ and $X_{2i} = 1)$

$(X_{1i} = 1$ and $X_{2i} = 0)$

$(X_{1i} = 0 \text{ and } X_{2i} = 1)$

$(X_{1i} = 0 \text{ and } X_{2i} = 0)$

Let P_1 be the proportion of the home school population with $X_{1i} = 1$; $(1 - P_1)$ the proportion with $X_{1i} = 0$; P_2 the proportion with $X_{2i} = 1$; and $(1 - P_2)$ the proportion with $X_{2i} = 0$.

Through our telephone interviews, we drew a sample in which the proportion with $X_{1i} = 1$ is p_1; the proportion with $X_{1i} = 0$ is $(1 - p_1)$; the proportion with $X_{2i} = 1$ is p_2; and the proportion with $X_{2i} = 0$ is $(1 - p_2)$. In general, $P_1 \neq p_1$ and $P_2 \neq p_2$.

We need to weight the sample data so that the simple average of Y_i^* is an unbiased estimate of the overall population average of Y_i. To do this, we created the weighted observations Y_i^*, such that:

$$Y_i^* = [P_1/p_1] \times [P_2/p_2] \times Y_i \text{ if } (X_{1i} = 1 \text{ and } X_{21} = 1)$$

$$Y_i^* = [P_1/p_1] \times [(1 - P_2)/(1 - p_2)] \times Y_i \text{ if } (X_{1i} = 1 \text{ and } X_{21} = 0)$$

$$Y_i^* = [(1 - P_1)/(1 - p_1)] \times [P_2/p_2] \times Y_i \text{ if } (X_{1i} = 0 \text{ and } X_{21} = 1)$$

$$Y_i^* = [(1 - P_1)/(1 - p_1)] \times [(1 - P_2)/(1 - p_2)] \times Y_i \text{ if } (X_{1i} = 0 \text{ and } X_{21} = 0)$$

In our YATS, the population segments were identified by two variables: whether the youth's parents were members of a home school association and whether the youth was evangelical Christian. In the Survey of Home School Associations, the two variables were whether the association was affiliated with the Home School Legal Defense Association (the largest home school advocacy organization) and whether the association identified itself as evangelical Christian.

Appendix E: Survey of home school associations

We conducted this survey of home school associations in April 2000 to gather information about what constitutes home schooling. The survey was also helpful in identifying effective ways for recruiters to reach out to home schoolers.

Survey of Home School Associations

The Conference Report of the National Defense Authorization Act for Fiscal Year 1999, Section 571, created a 5-year pilot program that gave home school graduates the same priority as graduates from traditional high schools for military enlistment purposes. The objective of this survey is to get information to support this pilot program. First, we need your input on how military recruiters can effectively reach out to home schoolers. Second, we need to find out how military recruiters can identify genuine home school graduates.

Reaching out to Home Schoolers

1. Check (√) the three **most effective ways** for military recruiters to reach home schoolers. Make sure you check **no more than three.**

   ☐ Ad or announcement—print periodical published by **home school association/local support group**

   ☐ Ad or announcement—home school **national print publication**

   ☐ Ad or announcement—home school **radio program**

   ☐ Ad or announcement—home school **web page**

   ☐ Ad or announcement—**value pack/coupon or card deck mailouts**

   ☐ Flyer in home school **curriculum supplies**

   ☐ **Exhibit table** at home school association events

   ☐ Other. Specify: _____

2. For each **print periodical** published by **your** organization, provide the following information. The publications may include newsletters, magazines, and other items that are issued at least once a year. Do not include inserts to main publications.

Name of your publication	Number of issues per year	Number of copies distributed of most recent issue	Would you accept advertising from military recruiters?	Average charge for full-page ad/flyer

Reaching out to Home Schoolers (Cont.)

3. For each **convention or other major event** sponsored by **your** organization during the last 12 months, please provide the following information:

Name of your event	Number of **families** attending	Would military recruiters be allowed to set up an exhibit table?	Average charge for exhibit table

4. If **your** organization currently broadcasts a **radio program,** please provide the following information:

Name of your program	Number of **families** tuning in	Would you accept advertising from military recruiters?	Average charge for a commercial spot

5. If your organization has an official **web page**, enter the following information:

Address of your web page	Number of hits last month	Would you consider a link to a military recruiting page?	Would you accept advertising from military recruiters?	Average charge for a banner ad

Survey of Home School Associations

Identifying Genuine Home School Graduates

Currently, only a home school diploma and transcript are required for entrance into the military. There is evidence, though, that some applicants are claiming to be home schooled when, in fact, they are not. This could jeopardize the pilot program.

6. What are **practical ways** for military recruiters to identify genuine home school graduates? Check (√) **all that apply.**

- ☐ A **notarized letter**—issued by **parents** confirming completion of high school through home schooling
- ☐ A **notarized letter**—issued by **a third party** (such as the clergy or an elected official) confirming completion of high school through home schooling
- ☐ A diploma, transcript, or letter—issued by a home school **local support group**
- ☐ A diploma, transcript, or letter—issued by a **state home school association**
- ☐ A diploma, transcript, or letter—issued by **curriculum providers**
- ☐ A diploma, transcript, or letter—issued by a **correspondence program**
- ☐ A diploma, transcript, or letter—issued by a home school **service center or umbrella school**
- ☐ A diploma, transcript, or letter—issued by a **local public school district/state department of education**
- ☐ A **portfolio** of high school work
- ☐ A written **description of the curriculum**
- ☐ Other. Specify: _____

7. For the pilot program to work, it is important that the military avoid enlisting applicants who are not genuine home school graduates. Which of the following applicants should the military **avoid** considering for enlistment under the home school pilot program? Check (√) **all that apply:**

- ☐ Home schooled only at age 20 or above
- ☐ Home schooled for less than 1 year at graduation point
- ☐ Expelled from school and later home schooled for less than 1 year to graduate
- ☐ Dropped out of school and later home schooled for less than 1 year to graduate
- ☐ Other. Specify: _____

- ☐ Should any exceptions apply to your choices above? Please be specific:

  _____
  _____
  _____
  _____

8. Does your organization issue high school diplomas?

- ☐ Yes   ☐ No

  If no, would your organization be willing to confirm high school attainment for individual members entering the military?

  - ☐ Yes   ☐ No

IDENTIFYING GENUINE HOME SCHOOL GRADUATES (CONT.)

9. To help military recruiters define home schooling, check (√) the statements that apply to home schooling. Check **all that apply.** Leave blank those that do not apply.

Primary provider of instruction	Primary location of instruction	Primary supervisor of learning program
☐ Parent	☐ Child's home	☐ Parent
☐ Grandparent	☐ Another home	☐ Grandparent
☐ Guardian	☐ Private school	☐ Guardian
☐ Sibling	☐ Church/worship space	☐ Sibling
☐ Other relatives	☐ Rented space	☐ Other relatives
☐ Self-instruction	☐ Free/donated space	☐ Self-supervision
☐ Family friend	☐ Other: _____	☐ Family friend
☐ Teacher/tutor assigned by public school system		☐ Teacher/tutor assigned by public school system
☐ Other teacher (not family)		☐ Other teacher (not family)
☐ Other: _____		☐ A private school official
		☐ Other: _____

10. Enter the name of your ORGANIZATION: _____

11. In what STATE is your organization located? _____

12. What geographic area does your organization cover?

☐ State ☐ Local/community
☐ Region within a state ☐ Other: _____
☐ County

13. How many FAMILIES are currently active members of your organization?

☐ Up to 50 ☐ 501 to 1,000 ☐ 5,001 to 10,000
☐ 51 to 100 ☐ 1,001 to 5,000 ☐ More than 10,000
☐ 101 to 500

14. May we contact you for clarification on your responses?

☐ Yes ☐ No

If yes, please enter the following information:

Your full name: _____

Your e-mail address: _____

Your telephone number: _____

Please return completed survey in the stamped envelope provided to CNA, Room 1014, 4401 Ford Avenue, Alexandria VA 22302

Appendix F: Categorizing personnel losses

We identified personnel losses as service members leaving the military before the end of the 12-month point. We subtracted "good" losses (such as separations related to selection to an officer program). We grouped personnel losses into the following six categories:

1. Medical

2. Fitness failure

3. Misconduct

4. Failure to adapt

5. Defective enlistment

6. Other or unknown loss types.

The other and unknown loss category includes, for example, recruits who separate for pregnancy, parenthood, admission of homosexuality, and unexplained reasons.

To classify the loss types, we relied on the DOD separation program designator (SPD), also known as the DOD loss code. The Army used its own code, the Separation Processing Number (SPN), along with the SPD.

We have found in past research that separation codes have some shortcomings, including:

- Although there may be more than one reason for an individual to separate, only one SPD is allowed on the separation form (DD Form 214).

- Coding is often performed by junior administrative staff who may settle on the first code that seems to fit. More problematic, some may maintain a "crib sheet" of a few codes only.

- Individuals separating tend have an underlying, unstated reason. For example, individuals dissatisfied with their work may resort to positive drug tests to get out quickly. In this case "failure to adapt" would be a more fitting reason, but "misconduct or drug use" is recorded as the official reason.

With these limitations of the separation codes in mind, we have sought to show the reasons for separation by education credential. We examined the set of codes recorded by the Defense Manpower Data Center (DMDC) and grouped them into the six loss categories.

We used the following codes to group personnel losses:

Medical

- Physical disability without pay: GFV, HFV, JFL, JFM, JFN, JFP, JFR, JFV, KFN, KFV, LFV
- Disability prior service: KFM
- Disability aggravation: JFQ
- Temporary disability retired list: SFK, WFK
- Permanent disability retired list: SFJ
- Death: 922, 925, 928, 929.

Fitness failure

- Weight control failure: GCR, HCR, JCR, KCR, LCR, MCR
- Obesity: GFT, HFT, JFT, KFT, LFT
- Failed procurement standards: FFW, JFW, LFW

Misconduct

- Drug abuse: GKK, KKK, HKK, JKK
- Drug rehabilitation failure: GPC, HPC, JPC
- Alcohol rehabilitation failure: GPD, HPD, JPD

- Misconduct: GKM, HKM, JKM, KKM

- Pattern of misconduct: GKA, HKA, JKA, KKA

- Misconduct—deserter: GKF, HKF, JKF, PKF, 941

- Misconduct—various reasons: GKD, HKD, JKD

- Misconduct—military prisoner: 942

- Civil conviction: GKB, HKB, JKB, KKB

- Conviction as deserter: JJC

- Conviction by SPCM/GCM: JJD

- Courts-martial conviction: JJA

- Sexual perversion: GKL, HKL, JKL, KKL

- Serious offense: GKQ, HKQ, JKQ, KKQ

- Bad conduct discharge: JJE

- Separation in lieu of trial: KFS

- Minor infractions: GKN, HKN, JKN, KKN.

Failure to adapt

- Personality disorder: GFX, HFX, JFX, KFX, LFX

- Entry-level misconduct: GGA, JGA, LGA

- Unsatisfactory performance: GHJ, HHJ, JHJ, LHJ

- Service chief discretion: JFG

- Convenience of government: JND, KND, LND, MND

- Service secretary plenary authority: MFF.

Defective enlistment

- Erroneous/defective entry: HGC

- Erroneous enlistment: JDN, LDN, KDN, MDN, YDN

- Erroneous entry—alcohol abuse: JFA, YFA

- Erroneous entry—drug abuse: JFU, YFU

- Erroneous entry—other: GFC, HFC, JFC, KFC, LFC, YFC

- Fraudulent entry: GDA, HDA, HKG, JDA, KDA

- Fraudulent entry—drug abuse: GDT, HDT, JDT, KDT, YDT, YPA, YPB

- Fraudulent entry—alcohol abuse: GDU, HDU, JDU, KDU, YDU

- Fraudulent entry—misrepresentation: YDA

- Breach of contract: KDS, MDS

- Minor: YFB.

Other or unknown losses

Other

- Pregnancy, parenthood, and family care: GDG, HDG, JDF, JDG, KDB, KDF, KDG, LDG, MDB, MDF, MDG

- Admission of homosexuality: GRA, GRB, GRC, HRA, HRB, HRC, JJB, JRA, JRB, JRC, KRA, KRB, KRC, LRB.

Unknown

- ZZZ, KGL, 474, 491, 496, 822, 829, 883, 946, 948, 950, 985, 991.

Appendix G: Attrition rates by educational credential

There are notable differences in attrition rates for some education categories in specific Services. Tables 5 and 6 show the attrition rates by education credential for each Service based on our recruit survey and DMDC personnel files, respectively.

Table 5. Twelve-month attrition rates by education credential—based on recruit survey[a]

Tier/education credential	Army		Navy		Air Force		Marine Corps		DOD overall	
	Number	% attrition	Number	% attrition	Number	% attrition	Number	% attrition	Number	% attrition
Tier 1										
Home school	408	10.4	628	25.6	304	10.9	193	19.7	1,533	17.2
Home school AFQT 50 or higher	259	11.3	354	18.8	227	8.3	134	11.9	974	12.2
ChalleNGe grad. with GED	350	7.5	209	34.9	54	35.5	138	10.8	752	21.2
ChalleNGe GED AFQT 50 or higher	139	3.1	82	26.7	28	37.5	58	6.3	307	15.2
High school graduate										
Public school	49,982	8.8	35,389	16.5	25,780	6.4	24,728	11.8	135,880	11.3
Private school	2,261	8.2	2,716	19.7	1,399	7.3	1,586	13.6	7,962	12.7
Adult education	1,410	9.9	1,651	24.2	1,061	8.6	772	18.3	4,894	15.9
College semester: Academic	1,788	11.6	1,606	24.1	744	9.0	777	14.3	4,915	15.3
College semester: Vocational	603	10.9	406	31.8	120	6.7	155	13.3	1,284	16.5
College: 2 years[b]	1,460	8.9	857	15.6	612	5.1	211	8.8	3,140	10.0
College: 4 years or more	2,342	4.6	678	16.6	1,110	4.4	166	6.3	4,295	8.3
Tier 2										
GED	5,436	10.4	4,153	30.0	220	17.6	717	23.6	10,526	20.8
Occupational program	819	9.0	532	26.4	253	2.8	420	15.3	2,024	14.3
H.S. attendance or completion	1,603	11.2	1,447	21.3	490	6.5	817	15.5	4,357	14.3
Correspondence school	176	5.0	142	18.2	48	6.3	276	12.9	641	11.0
Tier 3										
No high school credential	4,256	7.4	3,523	29.3	324	9.6	1,023	17.9	9,126	16.7
All recruits[c]	69,093	8.9	52,404	19.6	30,796	6.7	31,602	12.9	183,895	12.5

a. Nonprior service accessions for the year ending in February 2000.
b. Recruits who completed two years of college or more would qualify for Tier 1 for other credentials, such as a regular high school diploma or one semester of college. Thus, we do not count them separately in the total number of recruits.
c. The total number of accessions includes 1,562 recruits (0.85 percent of the total) for whom we were unable to identify an education credential. We had incomplete education credential data for these recruits.

Table 6. Twelve-month attrition rates by education credential—based on DMDC files[a]

Tier/education credential[b]	Army		Navy		Air Force		Marine Corps		DOD Overall	
	Number	% attrition	Number	% attrition	Number	% attrition	Number	% attrition	Number	% attrition
Tier 1										
Home school	169	8.5	302	24.2	60	6.9	93	25.0	624	17.0
ChalleNGe grad. with GED	160	10.7	260	34.1	8	25.0	184	19.5	612	22.2
High school graduate	58,554	8.9	39,738	17.3	29,511	6.7	28,473	12.1	156,276	11.7
Adult education	646	11.9	1,732	23.2	21	N/A	614	21.0	3,013	17.1
College semester	1,161	13.4	1,437	24.2	110	3.9	361	19.6	3,068	15.0
College: 2 years[c]	563	6.6	370	19.0	358	2.9	111	12.5	1,403	10.9
College: 4 years or more	1,352	4.7	573	16.7	277	6.8	120	2.9	2,323	7.9
Tier 2										
GED	5,837	8.8	3,888	31.1	236	11.5	1,054	21.7	11,015	19.0
Occupational program	0	N/A	6	N/A	17	N/A	0	N/A	23	N/A
H.S. attendance or completion	3	N/A	54	20.0	19	N/A	250	29.4	325	13.6
Correspondence school	6	N/A	21	N/A	2	N/A	12	N/A	41	N/A
Tier 3										
No high school credential	34	N/A	3,004	30.1	25	N/A	120	18.2	3,184	15.4
All recruits	69,093	8.9	52,404	19.6	30,796	6.7	31,602	12.9	183,895	12.5

a. Nonprior service accessions for the year ending in February 2000.
b. To identify the education credentials in this table, we used the two-digit numeric education code in the DMDC file. This code identifies home schoolers with a "25" and ChalleNGe graduates with a GED with a "27."
c. Recruits who completed two years of college or more would qualify for Tier 1 for other credentials, such as a regular high school diploma or one semester of college. Thus, we do not count them separately in the total number of recruits.

Appendix H: Regression estimates of attrition

Table 7 shows the factors associated with the probability of leaving the military by the 12-month point. Tables 8–11 show these factors for each Service. In each table, the reference educational group is high school graduates from public schools.

We ran an alternative regression specification with a category representing home school graduates with AFQT scores of 50 and above. The results indicate that these home schoolers have lower attrition (by 3.2 percentage points) than home schoolers with lower AFQT scores (statistically significant at the 94-percent level).

Table 7.   The probability of attrition in the first 12 months of service—all Services combined[a]

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Education credential[d]			
Home school	0.0375***	3.05	0.008
ChalleNGe grad. with GED	0.0439**	2.20	0.003
Private school	0.0091	1.61	0.04
Adult education	0.0239***	3.10	0.02
College semester: Academic	0.0196***	2.71	0.02
College semester: Vocational	0.0143	1.06	0.01
College: 2 years	-0.0109	-1.07	0.02
College: 4 years or more	-0.0239**	-2.34	0.02
GED	0.0253 ***	4.73	0.04
Occupational program	0.0069	0.66	0.01
H.S. attendance or completion	0.0102	1.20	0.01
Correspondence school	-0.0153	-0.80	0.003
No high school credential	0.0166 ***	2.77	0.03
Other education	0.0240 *	1.60	0.01

Table 7.   The probability of attrition in the first 12 months of
service—all Services combined[a] (continued)

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Participation in activities			
Athletics	-0.0057 **	-2.68	0.68
Arts	0.0072 ***	3.35	0.47
Importance given to attributes[e]			
Responsibility	-0.0023 *	-2.21	6.25
Drive	-0.0021 *	-2.36	6.31
Patriotism	-0.0011	-2.01	5.38
Smoking and drinking			
Regular smoker (4-5 times/wk)	0.0360 ***	12.79	0.31
Light smoker (2-3 times/wk)	0.0156 ***	4.56	0.17
Regular drinker (4-5 times/wk)	0.0202 ***	3.19	0.04
Light drinker (2-3 times/wk)	0.0017	0.50	0.57
Personal characteristics			
AFQT score	-0.0006 ***	-7.88	59.03
Accession waiver	0.0240 ***	8.20	0.18
Age	0.0007	1.03	19.54
Male	-0.0072 **	-2.72	0.82
African American	-0.0010	-0.26	0.20
Hispanic	-0.0049	-1.04	0.10
Asian/Pacific Islander	0.0047	0.83	0.04
Other race/ethnicity	0.0025	0.42	0.06
Unemployment rate	-0.0003	-1.14	14.22

a. Probit estimates. Includes nonprior service active duty enlisted·recruits only. Dependent variable is survival to the 12-month point. Number of observations is 57,357. Regression confidence level = 99.99 percent. Pseudo R squared = 0.14.
b. We also controlled for a total of 16 occupation categories.
c. Partial derivatives computed at the averages of the explanatory variables.
    *** Statistically significant at 99-percent confidence level.
     ** Statistically significant at 95-percent confidence level.
      * Statistically significant at 90-percent confidence level.
d. Reference educational credential is high school graduate from public school.
e. Self-reported importance of these 3 qualities are on a 7-point scale.

Table 8. The probability of attrition in the first 12 months of service—Army[a]

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Education credential[d]			
Home school	0.0040	0.21	0.007
ChalleNGe grad. with GED	-0.0092	-0.32	0.003
Private school	0.0007	0.08	0.034
Adult education	0.0023	0.21	0.02
College semester: Academic	0.0109	1.00	0.02
College semester: Vocational	-0.0026	-0.15	0.01
College: 2 years	-0.0004	-0.03	0.02
College: 4 years or more	-0.0327***	-2.70	0.02
GED	-0.0087	-1.31	0.05
Occupational program	-0.0066	-0.46	0.01
H.S. attendance or completion	0.0136	0.78	0.01
Correspondence school	-0.0348	-1.11	0.002
No high school credential	-0.0284***	-3.75	0.04
Other education	-0.2455	-0.87	0.01
Participation in activities			
Athletics	-0.0118***		0.69
Arts	0.0081**		0.45
Importance given to attributes[e]			
Responsibility	-0.0007	-0.43	6.21
Drive	-0.0034**	-2.18	6.26
Patriotism	0.0011	1.05	5.15
Smoking and drinking			
Regular smoker (4-5 times/wk)	0.0189***	4.57	0.33
Light smoker (2-3 times/wk)	0.0075	1.50	0.16
Regular drinker (4-5 times/wk)	0.0021	0.27	0.06
Light drinker (2-3 times/wk)	0.0026	0.70	0.60
Personal characteristics			
AFQT score	-0.0003***	-3.31	57.10

Table 8.   The probability of attrition in the first 12 months
            of service—Army[a] (continued)

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Accession waiver	-0.0036	-0.70	0.10
Age	-0.0013*	-1.87	19.63
Male	-0.0196***	-4.17	0.83
African American	-0.0065	-1.32	0.22
Hispanic	-0.0100	-1.40	0.10
Asian/Pacific Islander	-0.0090	-1.00	0.04
Other race/ethnicity	0.0138	1.50	0.06
Unemployment rate	-0.0001	-0.12	14.40

a. Probit estimates. Includes nonprior service active duty enlisted recruits only. Dependent variable is survival to the 12-month point. Number of observations is 23,653. Pseudo R squared = 0.09. Regression confidence level = 99.99 percent.
b. We also controlled for a total of 16 occupation categories.
c. Partial derivatives computed at the averages of the explanatory variables.
   *** Statistically significant at 99-percent confidence level.
    ** Statistically significant at 95-percent confidence level.
     * Statistically significant at 90-percent confidence level.
d. Reference educational credential is high school graduate from public school.
e. Self-reported importance of these 3 qualities are on a 7-point scale.

Table 9. The probability of attrition in the first 12 months of service—Navy[a]

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Education credential[d]			
Home school	0.0551	1.56	0.01
ChalleNGe grad. with GED	0.0703	1.17	0.004
Private school	0.0117	0.65	0.05
Adult education	0.0442 **	1.99	0.03
College semester: Academic	0.0293	1.41	0.03
College semester: Vocational	0.0750 **	1.98	0.01
College: 2 years	-0.0132	-0.42	0.02
College: 4 years or more	0.0424	1.04	0.01
GED	0.0591 ***	4.25	0.08
Occupational program	0.0781 **	2.12	0.01
H.S. attendance or completion	0.0183	0.61	0.02
Correspondence school	-0.0149	-0.18	0.002
No high school credential	0.0776 ***	4.89	0.06
Other education	0.0617 *	1.70	0.01
Participation in activities			
Athletics	0.0023	0.30	0.66
Arts	0.0154 **	2.07	0.49
Importance given to attributes[e]			
Responsibility	-0.0072*	-1.63	6.40
Drive	-0.0104**	-2.22	6.54
Patriotism	-0.0064***	-2.57	5.57
Smoking and drinking			
Regular smoker (4-5 times/wk)	0.0817 ***	8.74	0.37
Light smoker (2-3 times/wk)	0.0338 ***	2.87	0.17
Regular drinker (4-5 times/wk)	0.0567 ***	2.96	0.04
Light drinker (2-3 times/wk)	0.0060	0.71	0.59
Personal characteristics			
AFQT score	-0.0010***	-3.61	59.17

Table 9. The probability of attrition in the first 12 months
of service—Navy[a] (continued)

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Accession waiver	0.0272 ***	3.42	0.34
Age	0.0037 ***	2.67	19.95
Male	-0.0148	-1.52	0.79
African American	-0.0231 **	-2.16	0.21
Hispanic	-0.0448 ***	-3.29	0.11
Asian/Pacific Islander	-0.0259 *	-1.85	0.08
Other race/ethnicity	0.0149	0.79	0.06
Unemployment rate	-0.0009	-1.14	14.59

a. Probit estimates. Includes nonprior service active duty enlisted recruits only. Dependent variable is survival to the 12-month point. Number of observations is 11,010. Pseudo R squared = 0.23. Regression confidence level = 99.99 percent.
b. We also controlled for a total of 16 occupation categories.
c. Partial derivatives computed at the averages of the explanatory variables.
  *** Statistically significant at 99-percent confidence level.
   ** Statistically significant at 95-percent confidence level.
    * Statistically significant at 90-percent confidence level.
d. Reference educational credential is high school graduate from public school.
e. Self-reported importance of these 3 qualities are on a 7-point scale.

Table 10. The probability of attrition in the first 12 months of service—Air Force[a]

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Education credential[d]			
Home school	0.0452 ***	2.65	0.01
ChalleNGe grad. with GED	0.1132 ***	3.40	0.002
Private school	0.0070	1.01	0.05
Adult education	0.0069	0.60	0.01
College semester: Academic	0.0148	1.36	0.02
College semester: Vocational	-0.0462	-0.78	0.003
College: 2 years	-0.0007	-0.06	0.02
College: 4 years or more	0.0010	0.07	0.01
GED	0.0700 ***	3.06	0.01
Occupational program	-0.0260**	-2.00	0.01
H.S. attendance or completion	-0.0073	-0.61	0.14
Correspondence school	0.0140	0.30	0.001
No high school credential	0.0083	0.49	0.01
Other education	0.0540 **	2.30	0.01
Participation in activities			
Athletics	0.0008	0.25	0.69
Arts	0.0019	0.68	0.54
Importance given to attributes[e]			
Responsibility	-0.0037**	-2.26	6.25
Drive	0.0011	0.68	6.40
Patriotism	-0.0014	-1.36	5.46
Smoking and drinking			
Regular smoker (4-5 times/wk)	0.0257 ***	6.66	0.27
Light smoker (2-3 times/wk)	0.0152 ***	3.30	0.16
Regular drinker (4-5 times/wk)	0.0188	1.54	0.01
Light drinker (2-3 times/wk)	-0.0022	-0.72	0.51
Personal characteristics			
AFQT score	-0.0004***	-4.35	62.72

Table 10. The probability of attrition in the first 12 months of service—Air Force[a] (continued)

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Accession waiver	0.0028	0.69	0.13
Age	-0.0010	-1.15	19.23
Male	-0.0064***	-1.87	0.73
African American	0.0119*	2.67	0.19
Hispanic	0.0007	0.10	0.07
Asian/Pacific Islander	0.0006	0.07	0.04
Other race/ethnicity	-0.0131*	-1.75	0.06
Unemployment rate	-0.0004	-1.17	13.89

a. Probit estimates. Includes nonprior service active duty enlisted recruits only. Dependent variable is survival to the 12-month point. Number of observations is 14,243. Pseudo R squared = 0.18. Regression confidence level = 99.99 percent.
b. We also controlled for a total of 16 occupation categories.
c. Partial derivatives computed at the averages of the explanatory variables.
  *** Statistically significant at 99-percent confidence level.
   ** Statistically significant at 95-percent confidence level.
    * Statistically significant at 90-percent confidence level.
d. Reference educational credential is high school graduate from public school.
e. Self-reported importance of these 3 qualities are on a 7-point scale.

Table 11. The probability of attrition in the first 12 months of service—Marine Corps[a]

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Education credential[d]			
Home school	0.0359	1.14	0.01
ChalleNGe grad. with GED	-0.0122	-0.31	0.004
Private school	0.0086	0.64	0.05
Adult education	0.0366**	2.19	0.03
College semester: Academic	-0.0039	-0.23	0.02
College semester: Vocational	-0.0251	-0.76	0.01
College: 2 years	-0.0457*	-1.72	0.01
College: 4 years or more	-0.0469	-1.35	0.01
GED	0.0348**	2.05	0.02
Occupational program	0.0320	1.29	0.01
H.S. attendance or completion	0.0053	0.33	0.03
Correspondence school	-0.0116	-0.37	0.01
No high school credential	0.0220	1.44	0.03
Other education	0.0149	0.52	0.01
Participation in activities			
Athletics	-0.0097*	-1.68	0.67
Arts	0.0056	0.97	0.37
Importance given to attributes[e]			
Responsibility	-0.0017	-0.56	6.15
Drive	-0.0037	-1.42	6.03
Patriotism	-0.0035	-1.60	5.66
Smoking and drinking			
Regular smoker (4-5 times/wk)	0.0316***	4.41	0.28
Light smoker (2-3 times/wk)	0.0095	1.25	0.22
Regular drinker (4-5 times/wk)	0.0056	0.35	0.03
Light drinker (2-3 times/wk)	-0.0044	-0.73	0.58

Table 11. The probability of attrition in the first 12 months of service—Marine Corps[a] (continued)

Variable[b]	Marginal effect (percentage points)[c]	z ratio	Average
Personal characteristics			
AFQT score	-0.0009***	-5.62	58.04
Accession waiver	0.0121*	1.88	0.23
Age	0.0063***	4.92	19.26
Male	-0.0206*	-1.68	0.94
African American	-0.0121	-1.34	0.15
Hispanic	-0.0082	-0.76	0.13
Asian/Pacific Islander	0.0217	1.40	0.03
Other race/ethnicity	0.0022	0.18	0.09
Unemployment rate	-0.0001	-0.12	13.76

a. Probit estimates. Includes nonprior service active duty enlisted recruits only. Dependent variable is survival to the 12-month point. Number of observations is 8,451. Pseudo R squared = 0.16. Regression confidence level = 99.99 percent.
b. We also controlled for a total of 16 occupation categories.
c. Partial derivatives computed at the averages of the explanatory variables.
   *** Statistically significant at 99-percent confidence level.
   ** Statistically significant at 95-percent confidence level.
   * Statistically significant at 90-percent confidence level.
d. Reference educational credential is high school graduate from public school.
e. Self-reported importance of these 3 qualities are on a 7-point scale.

References

[1] United States House of Representatives, *National Defense Authorization Act for Fiscal Year 1999*, Conference Report, Section 571, H.R. 3616 (pages 116–118), Sep 22, 1998, Washington, DC

[2] Kurt J. Bauman. *Home Schooling in the United States: Trends and Characteristics*, Aug 2001 (U.S. Census Bureau, Working Paper No. 53)

[3] National Center for Education Statistics. *Homeschooling in the United States: 1999*, Jul 2001 (U.S. Department of Education, NCES 2001-033)

[4] Patricia M. Lines. *Homeschoolers: Estimating Numbers and Growth,* 1998 (U.S. Department of Education; National Institute on Student Achievement, Curriculum, and Assessment; Office of Educational Research and Improvement, Washington, DC)

[5] Brian D. Ray. *Home Schooling on the Threshold: A Survey of Research at the Dawn of the New Millennium,* 1999 (National Home Education Research Institute, Salem, OR)

[6] National Center for Education Statistics, *Youth Indicators,* 1996 (U.S. Department of Education, Washington, DC)

[7] Social Consultants International. *National Guard Youth ChalleNGe Program 2000 Annual Report,* 2001

[8] Brian D. Ray. *Strengths of Their Own—Home Schoolers Across America: Academic Achievement, Family Characteristics, and Longitudinal Traits,* 1997 (National Home Education Research Institute, Salem, OR)

[9] National Home Education Research Institute, personal communication, Aug 2000

[10] Janice Laurence, Peter Ramsberger, and Jane Arabian. *Education Credential Tier Evaluation: Final Report*, Sep 1996 (Human Resources Research Organization, FR-EADD-96-19)

[11] Social Consultants International. *National Guard Youth ChalleNGe Program 1999 Annual Report*, 2000

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